DOMAIN SUBJECT: HOME SCIENCE

(Syllabus with Outcomes, Co-curricular Activities, References & Model Question Papers for 1, 2, 3 and 4th Semesters)

The domain subject **HOME SCIENCE** is multidisciplinary course with inputs from Biological, Physical Chemical and Social Sciences and Technology which facilitate to study and enhance quality of well- being of individuals, families and communities. The course focuses on providing scientific and systematic knowledge about family, nutrition, resource management and interior designing , development of individuals through life span , Science of textiles and clothing and community development . In this course the students gain knowledge on fundamental principles and foundations of all the five core fields of the study Viz., **1.Food Science and Nutrition (FN) 2. Human Development (HD), 3. Textiles and Apparel Science (TEX), 4.Housing and Family Resource Management (HM) and 5.Extension and Community Development (EXT)**. The Five core courses empower the students with skills to improve every facet of individual's life by not only leading more enriched life but also provides excellent career opportunities through skill based training and contribute to the welfare of society by taking Science from the laboratory to the community.

Many Home Scientists have done exceptionally well as entrepreneurs themselves. They do not remain job seekers but have also become job creators. They gain and provide employment in research organizations, Food and Textile industries, Hospitals, Cafeterias, Commercial Restaurants, Fashion Designing, Apparel Merchandising, Consultancy and Counselling, Welfare Organizations, Extension Education and Community Development Programs. Keeping in view the growing aspirations of young generation the curriculum has been updated and designed for each course with outcomes which includes knowledge, intellectual skills and practical skills.

GENERAL CURRICULAR ACTIVITIES

> Lecturer-based

1) **Class-room activities**: Organization of Group discussions, question-answer sessions, scientific observations, use of audio-visual aids, guidance programmes, examination and evaluation work (scheduled and surprise tests), quizzes, preparation of question banks, student study material, material for PG entrance examinations etc.

2) Library activities: Reading books and magazines taking notes from prescribed and reference books and preparation of notes on lessons as per the syllabus; Reading journals and periodicals pertaining to different subjects of study; Making files of news-paper cuttings etc.

3) Lab activities: Organization of practicals related to five major Courses- Maintenance of lab attendance registers / log registers for different laboratories- Foods lab, Textiles lab, bio - chemistry lab, Maintenance of glassware, chemicals, utensils and equipment related to food practicals and furniture in cottage if available for the Housing and Family resource management coursepracticals.

4) Activities in the Seminars, workshops and conferences: Encouraging students to Participate /present posters, papers in seminar/workshop/conference.

5) **Smart Classroom Activities**: Organization of Departmental WhatsApp groups, /Google Class Rooms/ for quick delivery of the subject; Using smart/digital/e- class rooms (mandatory) wherever present; Utilization of YouTube videos (subject to copy rights) etc.

> Student-based

1) Class-room activities: Power point presentations, seminars, assignments etc.

2) Library activities: Visit to library during library hour and preparation of notes

3) Lab activities: Maintenance of observation note books for different labs, Preparing samples of art and textile stitches for record, , maintenance of utensils of food lab, sewing machine and textile tools of textiles laboratory.

4) Activities in the Seminars, workshops and conferences: Participation/presentation in seminar/workshop/conference.

5) Community based activities

- Preparation of audio-visual aids like charts, posters and models with clay, cardboard, thermocol sheets , album making for education of community .
- Planning and organization of exhibitions to create awareness about Nutrition, Interior decorative items, textile products etc.,
- As a part of field work programmes students visit urban slums and rural areas, conduct survey and provide nutrition education and health awareness through different teaching methods, audio-visual aids, method demonstrations, role plays etc.

CO-CURRICULAR ACTIVITIES

OBJECTIVES:

The co-curricular activities are aimed at strengthening the theoretical knowledge with an activity related to the content taught in the class room. The activities promote aesthetic development, character building, spiritual growth, physical growth, moral values and creativity of students.

The different types of co-curricular activities relevant to different domains of **Home Science** are listed below:

> Academic – based

- Planning and Preparation of diets for different health conditions, Development of Teaching, Learning Materials (TLM) for rural audience and pre-school children like Charts/Clay or Thermocol sheet Models etc., Designing and construction of different garments like frock, petticoat, salwar, kameez etc.
- 2) Promoting skills of resource management and interior design and decorationthrough cottage stay and organizing exhibitions; Development of TLM for rural audience to create awareness about health and Nutrition.
- 3) Debates, Essay Writing Competitions and Group Discussions.

> Lab/Research – based

- 1) Planning and preparation of normal diets for different age groups and therapeutic diets for different diseases
- 2) Getting hands-on experience through visits to hospitals, Government and nongovernment organizations, pre-schools, schools for children with special needs and visit to spinning and weaving mills and colour dyeing units.
- 3) Knowing about housing and interior decoration and applying art principles in planning and decoration of the house.
- 4) Field Visit to rural areas for understanding needs of community.
- > Value based

Celebration of significant days related to Nutrition, Health, Children and Women. Field and home visits by students in rural areas and educating the community about cleanliness, girlchild importance, child rearing practices, Nutrition, health awareness etc

Observation of Days of National/ International Importance

Republic Day (Jan 26th) International Women's Day (March 8th) World Health Day (April 7th) World Nutrition Day(May 28) Breast Feeding Week (August 1-7th) Independence Day (August 15th) Nutrition Week (Sept 1-7th) World Suicidal Prevention Day (Sep 10th) International Day of Elderly (October 1st) World Food Day (October 16th) Children's Day (Nov 14th) World Diabetes Day (Nov 14th) World Disability Day (Dec 3rd) Human Rights Day (Dec 10th)

HSC - 201 – INTRODUCTION TO FOOD SCIENCE

Outcomes of the course

At the end of this course, the students will be able to

A) Remember and explain in a systematic way of

- About different plant and animal foods, their selection, nutritive values, composition, and storage and processing.
- Explains the principles of food preservation and causes of spoilage.

B) Understanding and Uses

- Planning recipes of cereals and millets, pulses, Milk and Milk products, vegetables, fruits, nuts and oil seeds products
- Uses different foods in cookery.
- Understands application of different processing techniques in cookery.

C) Critically explain, judge and Solve

- Standardisation of weights and measures of various food items.
- Analyses different processing techniques to improve nutritive quality of foods by germination, fermentation, supplementation, fortification etc.

D) Creativity

• Planning and preparation of nutritious recipes by using different foods

E) Practical Skills

- Preparation of food without losing nutritive value
- Planning, preparing and calculating nutritive values of protein rich, Calcium rich, and Iron rich recipes.

HSC-201 – INTRODUCTION TO FOOD SCIENCE

Theory: 4Hours/week

THEORY

Unit-I Introduction to Food Science

- Foods –Definition and objectives in the study of foods-functions of foods, group classification and relation to nutrition
- Cooking Objectives of cooking, Preliminary preparations and methods of cooking Advantages and disadvantages of each method.
- Effect of cooking on different nutrients.

Unit-II Plant Foods

- Cereals and Millets–Structure, Composition and nutritive value, processing, selection, storage and use in cookery
- Pulses and Legumes– Composition and nutritive value, processing, selection, storage and use in cookery
- Vegetables and Fruits- Classification, Selection, Nutritional aspects, Pigments, Enzymatic and non-enzymatic browning.
- Nuts and oil seeds- Nutritive value, use in cookery

Unit-III Animal Foods

- Milk and milk Products nutritive value, use in cookery
- Egg -structure, nutritive value, methods to assess quality of eggs, changes during storage and use in cookery
- Meat, Poultry, Fish Nutritive value, use in cookery
- Spices and condiments Nutritive value, use in cookery

Unit-IV Food Processing

- Food Preservation Methods, principles and their applications-high temperature, low temperature, removal of moisture, irradiation and preservatives
- Food additives– Types and their role in food processing
- Nutrient Enrichment– Germination, fermentation, fortification etc.
- Multipurpose foods, Convenience and Ready to eat foods –Advantages and disadvantages

Unit - V Food Microbiology

- Food Spoilage Microorganisms causing spoilage Factors responsible for spoilage and changes brought about in food by microorganisms
- Microorganisms that bring about useful changes in food.
- Microbiology of different foods Contamination and spoilage of milk, egg, meat, fish, vegetables and fruits
- Food Sanitation and Hygiene Safe food practices during preparation, storage and serving of food.

Practicals: 2Hours/week

PRACTICALS

- 1. Standardization of weights and measures of various food items.
- 2. Cereals, pulse and vegetable preparations and calculation of nutritive values of recipe .
- 3. Milk, meat, egg preparations and calculation of nutritive values of recipes.
- 4. Demonstration of Drying, Fermentation and germination processing techniques.

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- 3. Reddy,S.M.(2015). Basic Food Science & Technology, 1st edition, New Age InternationalPublishers.
- 4. Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra, S. (2010). Basic FoodPreparation: A Complete Manual, Fourth Edition, Orient Black Swan Ltd.
- 5. Sumati R. Mudambi, M.V. Rajagopal. (2006). Food Science,2ndedition, New AgeInternational Publishers.
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- 7. Wardlaw MG, Insel PM. (2004). Perspectives in Nutrition, Sixth Edition, Mosby Publishers.

CO- CURRICULAR ACTIVITIES

- 1. Student Seminars on different food groups
- 2. Collection of samples of different food products available in the market and study theirnutrient composition and use in cookery.
- 3. Field visits Visit to food processing units.
- 4. Field study Survey on Food Additives used in various food products/ processed foods.
- 5. Collection of different ready to eat foods and processed foods.
- 6. Celebration of Important Days (National and International)
 - World Nutrition day-May 28th
 - Nutrition week (Sep 1st 7th)
 - World food day- October16th

HSC-201 INTRODUCTION TO FOOD SCIENCE

MODEL QUESTION PAPER

Time: 3 hrs.

Max. Marks: 75

(5x5 = 25 Marks)

PART – A

Answer any FIVE questions. Each question carries 5 Marks

- 1. What are the functions of food?
- 2. Draw the structure of a cereal grain and explain.
- 3. Discuss the advantages of germinating seeds.
- 4. What are the changes that occur during the storage of eggs?
- 5. What is the significance of spices in cooking?
- 6. Write about convenience foods.
- 7. Define food spoilage. What are the changes occur in food by microorganisms.
- 8. Write about pigments present in vegetables and fruits.

PART – B

Answer FIVE questions. Each Question carries 10 Marks (5x10 = 50 Marks)

9. a) What is cooking? What are the objectives of cooking?

(OR)

- b) Classify methods of cooking and explain any five methods.
- 10. a) Discuss the nutritive value of pulses and legumes.

(OR)

b) Write briefly about different millets.

11. a) Discuss various fermented and non-fermented milk products.

(OR)

- b) Explain the nutritive value of meat and fish.
- 12. a) Define food preservation. Write in detail about any three methods of food preservation.

(OR)

- b) List out food additive and discuss their role in food processing.
- 13. a) Write an essay on micro-organisms that bring about useful changes in food.

(OR)

b) Define food sanitation and hygiene. Write about safe food practices to prevent the contamination of food.

HSC-202–FUNDAMENTALS OF TEXTILES

Outcomes of the course

The students will be able to

A. Remember and explain in a systematic way:

- The importance of the textiles in human life and also the textile terminology and types of fibres.
- Use of Textile fibres in various fields.

B. Understands and Uses

- Identification of different fibres like plant fibres, animal fibres based on properties.
- Gains knowledge on manufacturing of different textile fibers.
- Understands the method of Spinning and process of yarn construction.

C. Critically explains, judges

- Critical differences between cellulose, protein and man-made fibres.
- Judge the differences between simple and novelty yarns.

D. Working in out of prescribed areas under co-curricular activity

• Collection of different fabrics and gain knowledge about their seasonal usage.

E. Practical Skills

- Identification of different textile fibres using microscopic, burning tests.
- Identification of yarns and their use in textiles.

HSC-202–FUNDAMENTALS OF TEXTILES

Theory: 4 Hours/week

Practicals: 2 Hours/week

THEORY

Unit-I Introduction to Textiles and Clothing

- Introduction to textiles and clothing- Importance of study of textiles.
- General properties of a Textile Fiber Primary and Secondary.
- Classification of textile fibers- Natural and manmade; cellulose, protein, synthetic and mineral; staple and filament fibres

Unit-II Natural Fibers

- Cellulose fibres Cotton and Linen Production, properties, use and care
- Minor cellulose fibres
- Protein fibers Silk and wool Production, properties, use and care.

Unit-III Synthetic Fibers

- Nylon Production, properties use and care
- Polyester Production, properties use and care
- Acrylic fibres Production, properties use and care

Unit – IV Mineral Fibers

- Mineral fibres Fibre glass and Asbestos Production, properties and Uses
- Mixtures and Blends Importance and advantages of Blending.
- Blends of Natural cellulosefibers, protein fibers and manmadefibers.

Unit – V Yarns

- Yarns Types of Yarns Staple and Filament
- Methods of spinning Mechanical process
- Methods of spinning Chemical process Wet, Dry, Gel and Melt
- Classification of yarns simple, novelty andtextured yarns

PRACTICALS

- 1. Identification and collection of Textile Fibres
 - Plant Fibres Cotton, Linen, Jute
 - Animal Fibres Silk, Wool
 - Synthetic Fibres Polyester, Nylon, Acrylic
- 2. Identification and collection of Yarns
 - Simple Yarns
 - Novelty Yarns
- 3. Tests to identify textile fibers
 - Texture
 - Microscopic examination and
 - Burning test.

REFERENCES

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- 2. KanwarVarinder Pal Singh. (2014). Introduction to Textiles, 1st edition, Kalyani Publishers.
- SeemaSekhri. (2017). Text book of Fabric Fundamentals to Finishing, 2nd edition, PHI Learning Pvt. Ltd.
- Sushma Gupta, NeeruGarg, RenuSaini. (2018). Text book of clothing, textiles and laundry, 8th edition, Kalyani publishers.
- 5. Vastala, R. (2013) .Text book of Textiles and Clothing, 1st edition, Published by ICAR.

CO- CURRICULAR ACTIVITIES

- 1. Seminar/Assignment/Quiz/Group Discussion
- 2. Use of ICT in Class reports and Seminars.
- 3. Project Work
- 4. Construction of garments and their exhibition.
- 5. Visit to nearby weaving, dyeing units and printing Centres.

HSC-202-FUNDAMENTALS OF TEXTILES

MODEL QUESTION PAPER

PART - A

Answer any FIVE questions. Each question carries 5 Marks.

- 1. Write about the importance of Textiles?
- 2. Explain the microscopic structure of cotton fibre.
- 3. Compare woollen and worsted wool.
- 4. What is retting? Explain the methods of retting.
- 5. Write about simple yarns.
- 6. Name minor cellulose fibres. Write a short note on Jute.
- 7. Explain the production of Polyester.
- 8. Write about Sericulture?

PART - B

Answer FIVE questions. Each question carries 10 Marks.

1. a) Define textile fibre. Discuss the general properties of a textile fibre.

(OR)

- b) Write in detail about the classification of textile fibres.
- 2. a) Discuss the physical and chemical properties of cotton fibre.

(OR)

- b) Write in detail about the production of wool.
- 3. a) Explain the production of nylon and discuss its physical properties.

(OR)

- b) Discuss the physical and chemical properties of acrylic fibre.
- 4. a) Write in detail about the production and uses of fibre glass.

(OR)

b) What are blends and mixtures? Give their importance. Write about the blends available in the market.

5. a) What is spinning? Explain the processes of mechanical spinning.

(OR)

b) What are novelty yarns? Explain different novelty yarns

Max Marks: 75

(5x5=25 Marks)

(5x10=50 Marks)

HSC-203 – FUNDAMENTALS OF HOME SCIENCE EXTENSION

Outcomes of the course

The students will be able to:

A) Remember and explain in a systematic way

- Learn the meaning, scope and concept of Home Science Extension.
- Explain the importance of Extension Education in Home Science

B) Understand and Use

- Understand the role Extension worker in community
- Understand the Principles, steps in Teaching and Learning process

C) Critically explains, judges

- Qualities of an Extension Worker
- Different Teaching Methods and Teaching Aids in Communication Process.

D) Working in out of prescribed areas under co-curricular activity

- Know the importance of Teaching Methods and Teaching Aids in Communication Process.
- Know the barriers of communication and learn how to overcome them.

E) Practical skills

- Learn Practical skills in planning, preparation of Audio-Visual Aids
- Usage of bulletin board in extension education
- Use of different types of Teaching methods and Audio-Visual Aids for different target groups.

HSC- 203 – FUNDAMENTALS OF HOME SCIENCE EXTENSION

Theory: 4 Hours/week

THEORY

Unit-I Extension Education

- Meaning, Concept, Scope and objectives
- Formal and Non formal Education
- Philosophy and principles of Extension Education
- Role and Qualities of an Extension worker

Unit-II Teaching and Learning Process

- Teaching Meaning, definition, steps in Teaching
- Learning Meaning, definition, Elements of Learning
- Learning Situation Definition, Elements of Learning Situation
- Principles of learning and their Implications for Teaching
- Motivation Principles of Motivation in Extension
- Classification of motives

Unit-III Teaching Methods/Techniques

- Extension Teaching methods Definition, Functions and Classification of Teaching methods According to use and form
- Individual methods Farm and home visits, Telephone calls, Personal letter, Result demonstrations.
- Group methods Method demonstration, Group meetings/Discussions, Conferences, Field trips etc.
- Mass Methods Print and electronic media, Internet and Exhibitions
- Factors to be considered in selection and combination of teaching methods

Unit-IV Audio - Visual Aids:

- Audio Visual Aids Meaning and Classification
- Factors Influencing selection of Audio-Visual Aids
- Principles of Preparing in Planning, Presentation and evaluating in Audio-Visual Aids
- The cone of Experience

Unit-V Communication

- Communication Meaning, Definition and scope of Communication
- Key Elements in the process of Communication 1. Communicator 2. Messages, 3.Channel 4. Treatment of Messages 5. Audience 6. Audience Response.
- Types of Communication Verbal, Non Verbal, Small group and Mass Communication.
- Barriers to communication.

Practicals: 2 Hours/week

PRACTICALS

- 1. Visit to a community/ village to find out the socio economic needs of the people
- 2. Preparation of Survey Schedule
- 3. Preparation and display of teaching aids Posters, charts, flash cards etc.
- 4. Display of bulletin board

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- 3. Doshi, S.L. (2007). Rural Sociology. Delhi Rawat Publishers.
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- 6. SanthsGovind, G. Tamliselvi And J. Meenainbigai .(2011). Extension Education and Rural Development .Agroblos (India) Chopasani Road Jodhpur- 342002 (Raj.)
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- 8. Supe, S.V.(1983). An Introduction to Extension Education. Oxford& IBH publishing Co, New Delhi.

CO- CURRICULAR ACTIVITIES

- 1. Adoption of a village based on the socio-economic background.
- 2. Visit to an adopted village and conduct
 - Baseline survey regarding demographic, population, Educational and felt needs of the villagers.
 - Collection of data.
 - Pooling and Analyzing the data.
- 3. Preparation, use and evaluation of visual aids viz.,
 - Poster
 - Different types of charts.
 - Flash cards
 - Display of Bulletin Board.
- 4. Presentation of seminars in the class rooms.
- 5. Blackboard teaching for 15 minutes in the class room.
- 6. Promoting effective verbal and non-verbal communications among students.

HSC-203- FUNDAMENTALS OF HOME SCIENCE EXTENSION

MODEL QUESTION PAPER

Time: 3 hrs.	Max. Marks: 75

PART -A

Answe	er any FIVE questions. Each question carries 5 Marks	(5x5 = 25 Marks)			
1.	Define meaning & principles of extension education.				
2.	2. Write about the qualities of an extension worker.				
3.	3. Write about types of communication.				
4.	4. Explain the need for motivation in extension.				
5.	5. What are teaching methods? Classify them.				
6.	6. Write about home visits.				
7.	7. Write about the preparation of flash cards.				
8.	8. Elucidate principles to be followed in preparation of poster.				
	PART-B				
Answer FIVE questions. Each question carries 10 Marks (5x10 = 50 Marks)					
9.	a) Explain the principles of Extension Education.				

(OR)

b) Write in detail about non-formal education.

10. a) Explain the steps in teaching process.

(OR)

b) What are the principles of learning and their implications for teaching?

11. a) Write in detail about method demonstration.

(OR)

b) Discuss the factors affecting the selection of teaching methods.

12. a) Explain Cone of Experience.

(OR)

b) Write about the different types of charts and their use.

13. a) Define communication. Explain the elements in communication process.

(OR)

b) Define communication. Write about the importance of communication in Extension work.

SYLLABUS VETTEDBY

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TIRUPATI.

SUBJECT EXPERTS

S.No	DOMAIN COURSES		SUBJECT EXPERTS
1	Food Science and Nutrition (FN)	1.	Dr.K.V.Sucharitha , Asst.Professor, Dept. of Home Science, S.V. University, Tirupati.
		2.	Dr.K.Manjula, Asst. Professor, Dept. of Home Science, S.V .University, Tirupati.
		3.	Mrs. B. Sandhya Lakshmi, Lecturer in Home Science, Osmania College for women, Kurnool.
		4.	Dr. G. Nagamani, Lecturer (Contract), Dept. of Home Science, S.P.W Degree and PG College, Tirupati
2	Human Development (HD)	1.	Dr. C.Kalapriya , Asst. ProfessorDept. of Home Science, D.K. Govt. College for Women(A), Nellore.
		2.	Dr. B.Swaroopa Rani , Asst.Professor Dept. of Home Science, S.V .University, Tirupati
3	Textiles and Apparel Science (TEX)	1.	Dr. P. Kumari, Professor, Dept. of Home Science, S.P.W Degree and PG college, Tirupati.
		2.	Mrs. G. Srivani, Lecturer (Contract), Dept. of Home Science, S.P.W Degree and PG College, Tirupati.
		3.	Dr. C.Kalapriya ,Asst.ProfessorDept. of Home Science,D.K.Govt. College for Women(A),, Nellore.
4	Housing and Family Resource Management (HM)	1.	Dr. V. Lakshmi, Asst.Professor, Dept. of Home Science, S.P.W Degree and PG College, Tirupati.
		2.	Mrs. B. Sandhya Lakshmi ,Lecturer in Home Science, Osmania College for women, Kurnool.
5	Extension and Community Development (EXT)	4.	Dr. P. Kumari, Professor, Dept. of Home Science, S.P.W Degree and PG college, Tirupati