



UNIVERSITY OF JAMMU

NOTIFICATION (18/March./Adp/93)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, is pleased to authorize the adoption of the Syllabi and Courses of Study in the subject of **B.Sc. Home Science** and **Food Science and Quality Control** for the Vth and VIth Semesters under the **Choice Based Credit System** at the Undergraduate level (**as given in the Annexure**) for the Examinations to be held in the years indicated against each semester as under:-

Subject	Semester	For the examinations to be held in the year
B.Sc.(Home Science)	Semester-V Semester-VI	December 2018, 2019 and 2020 May 2019, 2020 and 2021
B.Sc.(Food Science and Quality Control)	Semester-V Semester-VI	December 2018, 2019 and 2020 May 2019, 2020 and 2021

The Syllabi of the courses is available on the University website: www.jammuuniversity.in

Sd/-
DEAN ACADEMIC AFFAIRS

No. F. Acd/II/18/17914 - 433
Dated: 13-03-2018

Copy for information and necessary action to:

1. Special Secretary to the Vice Chancellor, University of Jammu for the kind information of the Worthy Vice-Chancellor please
2. Sr. P.A. to the Dean Academic Affairs/ Dean Research Studies
3. Sr. P.A. to the Registrar/Controller of Examinations
4. Dean, Faculty of Science
5. HOD/Convener, Board of Studies in Home Science
6. All members of the Board of Studies
7. C.A to the Controller of Examinations
8. I/c Director, Computer Centre, University of Jammu
9. Asst. Registrar (Conf. /Exams. UG/ Inf./Pub.)
10. Incharge, University Website for necessary action please.


Assistant Registrar (Academic)

o/c

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13/03/2018

UNIVERSITY OF JAMMU

SYLLABI AND COURSES OF STUDY FOR B.Sc. HOME SCIENCE SEMESTER Vth FOR THE EXAMINATION TO BE HELD IN THE YEARS 2018, 2019 and 2020

Course Code	Subject	Maximum Marks		Credits	Duration of Examination
		University Examination	Internal Assessment		

A CANDIDATE HAS TO CHOOSE ANY 3 OUT OF 5 DISCIPLINE SPECIFIC COURSES

UHSET501	Therapeutic Nutrition	80	20	4	2.5hrs
UHSEP 501	Practicals	25	25	2	3hrs
UHSET502	Processes in Apparel Design	80	20	4	2.5 hrs
UHSEP 502	Practicals	25	25	2	3 hrs
UHSET 503	Communication for Development	80	20	4	2.5 hrs
UHSEP503	Practicals	25	25	2	3hrs
UHSET 504	Child Rights and Gender Empowerment	80	20	4	2.5 hrs
UHSEP 504	Practicals	25	25	2	3hrs
UHSET 505	Entrepreneurship Development	80	20	4	2.5 hrs
UHSEP 505	Practicals	25	25	2	3 hrs
UHSPS 506*	Activities and Resources for Child Development (Practical)	50	50	4	6 hrs
UHSPS 304*	Image Styling and Fashion Illustration (Practical)	50	50	4	6 hrs
UHSTS 305*	Nutrition Health Communication (Theory)	80	20	4	2.5 hrs

* Any one skill development course to be selected.

SEMESTER V
DISCIPLINE SPECIFIC ELECTIVE (DSE)
THERAPEUTIC NUTRITION

Course code: UHSET 501
 Duration of Examination: 2.5 hrs

Max marks = 100
 External assessment =80
 Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020
Recommended credits: 4(4 hrs. per week)

Objectives:

1. To understand principles of nutrition care and therapeutic adaptations of the normal diet
2. To familiarize the students with etiology, clinical features and nutritional management of different diseases

Theory

Unit 1 Principles of nutrition care

- Nutrition Care Process
- Therapeutic adaptations of the normal diet
- Progressive diets – clear fluid, full fluid, soft and regular

Unit 2 Etiology, clinical features and nutritional management of Infections and Fevers:

- Typhoid
- Tuberculosis
- HIV

Unit 3 Etiology, clinical features and nutritional management of the following:

- GI Tract Disorders:
 - Diarrhea
 - Constipation
 - Lactose intolerance
 - Celiac disease.
- Liver: Infective Hepatitis

Unit 4 Etiology, clinical features and nutritional management of:

- Weight Imbalances-Overweight and obesity; Underweight
- Eating disorder- anorexia nervosa and bulimia

Unit 5 Etiology, clinical features, basic diagnosis and nutritional management of the following:

- Type 1 and Type 2 Diabetes Mellitus
- Hypertension and Coronary Heart Disease

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.
- 1 Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)

2. Five(5) medium answer to the questions representing all units/syllabi i.e at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
3. Five (5) long answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS

- Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, Puri S (2013). *Textbook of Nutrition and Dietetics*. Phoenix Publishing House Pvt. Ltd.
- Mahan L K and Escott Stump S (2013). *Krause’s Food & Nutrition Therapy*, 13th ed. Saunders-Elsevier.
- Stacy Nix (2009). *William’s Basic Nutrition and Diet Therapy*, 13th Edition. Elsevier Mosby.
- ICMR (1999). *Nutritive Value of Indian Foods*. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
- Seth V and Singh K (2007). *Diet Planning through the Life Cycle Part II: Diet Therapy. A Practical Manual*, 4thedition. Elite Publishing House Pvt. Ltd.

PRACTICALS

Course code: UHSEP 501

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max Marks: 50

External Assessment: 25

Internal Assessment: 25

1. Planning, preparation and service of diets for the following:
 - i. Fevers: acute and chronic
 - ii. Obesity
 - iii. Type 2 Diabetes
 - iv. Hypertension and CHD
2. Therapeutic Diets – Normal, Soft, Clear and full fluid
3. Survey of therapeutic foods in market

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

SEMESTER V
DISCIPLINE SPECIFIC ELECTIVE (DSE)
PROCESSES IN APPAREL DESIGN

Course code: UHSET 502
 Duration of Examination: 2.5 hrs

Max marks = 100
 External assessment = 80
 Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. To acquaint the students with terminologies related to clothing and fashion.
2. To develop skills in identification of garment components
3. To acquaint them with the basic principles of pattern making and designing

Unit 1 Importance of Clothing

- Clothing functions and theories of origin
- Individuality and Conformity, Conspicuous Consumption and Emulation
- Selection of Clothes for self
- Selection and Evaluation of Readymade Garments
- Principles & Components of Clothing Construction
- Requirements for good garment construction

Unit 2 Fashion

- Terminology
- Fashion Cycle and Sources of Fashion
- Factors favoring and retarding fashion
- Consumer groups, Fashion leaders, followers
- Adoption Process: Trickle-down theory, bottom up and trickle across theory

Unit 3 Introduction to pattern making

- Anthropometric measurements and Taking accurate body measurement
- Importance of patterns and pattern information
- Methods of pattern making
- Pattern grading: Introduction and principles

Unit 4 Study of garment components: Classification and application

- Fabric, seams, stitches, threads, shaping methods, dart equivalents
- Sleeves, Collars, Cuffs, necklines, plackets, yokes, pockets and trims
- Style Variations: Bodice skirts, trousers in various silhouettes

Unit 5 Design

- Elements and principles of design
- Structural and applied design
- Designing for different figure types
- Use of trims and decorative features for designing Apparel.

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.
1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory) (3×5=15)
 2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
 3. Five (5) long answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS

- Armstrong, H.J.(2009), Pattern Making for Fashion Design, Harper Collins Publishers Inc., New York.
- Stamper, A.A., Sharp, S.H. and L.B. Donnell (1986) Evaluating Apparel Quality, Fairchild Publications, America
- Liechty, E.G., Potterberg, D.N., Rasband, J.A.(2010) Fitting and Pattern Alteration : A Multimethod Approach, Fairchild Publications, New York.
- Khurana, K.(2012). Fabrics for Fashion and Textile Design. Published by Sonali Publications. New Delhi.
- Roy, A.(2011) Fashion Designing and Technology. Published by Sonali Publications. New Delhi.

PRACTICALS**Course code: UHSEP 502**

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max Marks: 50

External Assessment: 25

Internal Assessment: 25

1. Development of bodice, skirt and various sleeves and collars
2. Develop style variations in adult bodice using dart manipulation on half scale standard block
3. Adaptation of basic skirt block into style variations (Half scale)
4. Construction of skirt for self
5. Construction of skirt top/ kurta for self

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

SEMESTER V
DISCIPLINE SPECIFIC ELECTIVE (DSE)
COMMUNICATION FOR DEVELOPMENT

Course code: UHSET 503
 Duration of Examination: 2.5hrs

Max marks = 100
 External assessment = 80
 Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. To acquaint students with the concept of development communication in the context of social change and India's development initiative.
2. To build an understanding of roles and responsibilities of a development reporter.
3. To understand the importance of various media in development communication.

Unit 1 Concept of Development Communication

- Concept of development, characteristics of developing countries
- Measuring development- Indices of measuring development and classification of countries based on development indices
- Development Communication- concept and genesis, characteristics, differences between communication and Development Communication
- Scope and use of development communication

Unit 2 Understanding Paradigms of Development

- Definition of Paradigm and Models of Development (Briefly)
- Press Theories: Authoritarian, Social responsibility
- Key issues about Development communication
- Sociological: Uses and gratification
- Psychological: Bullet Theory

Unit 3 Development reporting

- Roles and responsibilities of a development reporter
- Issues in development reporting
- Ethics in reporting
- Specialized skills required
- Reporting for different media -Print, Radio, Television, Web Media, Comparing the Differences.

Unit 4 News and News reporting

- News Reporting: Definition of News
- Ingredients and qualities of News
- News value, Role of News in Development Communication
- Types and Structure of News Reports
- Impact of Technology on News Reporting for Development

Unit 5 Development Communication using various Media

- Traditional Media: Types, characteristics, role in development communication
- Radio news, community radio and its role in development
- Television and its role in development communication.
- Cinema: Role in development communication.
- ICTs: Scope in development communication. Satellite Technology and Development Communication.

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ♦ The external examinations in theory shall consist of the following.
- 1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory) (3×5=15)
- 2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)

3. Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS

- Narula, Uma (1994) Development Communication, New Delhi, Har Anand Publication
- Servaes, Jan (2008). Communication for Development and Social Change, New Delhi, Sage Publication
- Paulo Mefalopulos. Development Communication Sourcebook- Broadening the boundaries of communication, The World Bank, 2008
- Obregen, Rafael, Wilkins, K.G., and Tufte, Thomas(2014). The Handbook of Development Communication and Social Change, Wiley.
- Vilanilun, J.V.(2009). Development Communication in Practice.India and the MDG, Sage Publications
- Prasad K.(2009)Communication for Development 2 Volumes, BR World of Books.
- Ray, G.L.(2006).Extension Communication and management, 8th Revised Ed.
- Dubey, V.K. &Bishnoi, I.(2008).Extension Education and Communication. New age international Pvt. Ltd.
- Dhama, O.P. &Bhatnagar O.P.(2010).Education and Communication for Development (Ind Ed.) Oxford & IBH Publishing Cooperative Pvt. Ltd.

PRACTICALS

Course code: UHSEP 503

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

1. Analysis of development indicators - national and international perspectives
2. Critical analysis of selected development communication initiatives in India: Any two
3. Analysis of media for development communication: Any two
4. Designing media for development communication: Any two

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

SEMESTER V

DISCIPLINE SPECIFIC ELECTIVE (DSE)
CHILD RIGHTS AND GENDER EMPOWERMENT

Course code: UHSET 504
Duration of Examination: 2.5 hrs

Max marks = 100
External assessment = 80
Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits : 4(4 hrs. per week)

THEORY**Objectives:**

1. To create awareness about child rights, policies and programmes for children in India.
2. To be sensitized to the needs of vulnerable groups.
3. To acquaint students with gender issues.

Unit 1 Understanding Child Rights

- Meaning of Child Rights and Convention on Child Rights
- Knowing disadvantage and exclusion in relation to children
- Demographic profile of the child in India
- The role of state, family and children in promotion and protection of child rights

Unit 2 Children in Difficult circumstances

- Street children, working children and homeless children
- Child Abuse
- Child Trafficking
- Children in conflict with law
- Laws and policies for children in difficult circumstances

Unit 3 Conceptualizing Gender

- Defining terms- sex, gender, masculinity, femininity
- Biological and cultural determinants of sex and gender
- Status of health, nutrition and education of Girl Child and Women in India
- Perspectives on feminism
- Demographic profile of girl child and women in India

Unit 4 Social Construction of Gender

- Socialization of gender: gender roles, stereotypes and identity
- Gender in the workplace and in public spaces
- Patriarchy and social institutions
- Being male and female in Indian society- social traditions and contemporary issues

Unit 5 India's Gender Empowerment Profile and Contemporary Issues

- Demographic profile
- Issues and concerns related to Empowerment of Females in India
- Media and gender
- Laws, policies and programmes for girls and women in India

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- The external examinations in theory shall consist of the following.
 1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)
 2. Five(5) medium answer to the questions representing all units/syllabi i.e at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
 3. Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and

having 15marks each answer (Any two to be attempted).

(15×2=30)

RECOMMENDED READINGS:

- Agarwal, A. & Rao, B.V. (2007). Education of Disabled Children. New Delhi: Eastern Book Corporation.
- Agnes, F. (1999). Law and Gender Inequality: The politics of Women's Rights in India. Oxford University Press.
- Bajpai, A. (2006). Child Rights in India: Law, Policy and Practice. Oxford University Press.
- Kishwar, M. (1999). Off the Beaten Track: Rethinking Gender Justice for Indian Women. New Delhi: Oxford University Press.
- Satyarthi, K. and Zutshi, B. (Ed) (2006). Globalization, Development and Child Rights. New Delhi: Shipra Publication.
- Saikia, N. (2008). Indian women: A socio-legal perspective. New Delhi: Serials Publication.
- Nanjunda, D.C.(2008). Child Labor and human rights. A perspective. Kalpaz Publications. New Delhi.
- Chatterji, S.A.(2010).Nomen in Perspective Essays on Gender Issues.Published byRenu Kaul Verma for Vitasta Publishing Pvt.Ltd. New Delhi.

PRACTICALS

Course code: UHSEP 504

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

1. Understanding child rights and gender in diverse social groups through visits: Any two places
2. Interactions with children in difficult circumstances: Any two
3. Understanding gender realities in different social groups: Two Groups
4. Exploring the concept of child rights and gender through audio-visual sources and workshops
5. Programme planning for child rights and gender: Any one

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

SEMESTER V
DISCIPLINE SPECIFIC ELECTIVE (DSE)
ENTREPRENEURSHIP DEVELOPMENT

Course Code:UHSET 505

Duration of Examination: 2.5 hrs

Max marks = 100

External assessment =80

Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. *To orient the students to the concept, need and process of entrepreneurship.*
2. *To understand the market, types of business, the parameters for selecting and running an enterprise successfully.*

Unit 1 Entrepreneurship Development

- Entrepreneurship- concept, definition, need and significance of entrepreneurship development in India, entrepreneurship growth process, barriers, entrepreneurship education model.
- Entrepreneur-their characteristics, types, gender issues, role demands and challenges.
- Entrepreneurial Motivation.
- Challenges faced by Women Entrepreneurs

Unit 2 Enterprise Planning

- Types of enterprises : classification based on capital, product, location, ownership pattern and process
- Sensing business opportunities
- Assessing market potential
- Market Research: Process and steps

Unit 3 Launching an Enterprise

- Identification and selection of project plan/ business plan
- Formulation of project plan/business plan
- Estimation and mobilization of resources
- Appraising of project and feasibility

Unit 4 Enterprise Management

- Managing Production
 - Organizing Production; input-output cycle
 - Ensuring Quality
- Managing Marketing
 - Understanding markets and marketing
 - Functions of Marketing
 - 4Ps of Marketing(same as marketing mix)
- **Meaning of Finance-** Types and Sources, Financial -Planning, Control, Decision Making and Scope

Unit 5 Entrepreneurship in Home Science and Supports available

- Human Development
- Clothing and Textiles.
- Extension education.
- Family Resource Management.
- Foods and Nutrition
- **Support organizations available in J&K for establishing small enterprises like**
 - Women Development corporation.
 - Small Scale Industries Unit.
 - Industries Development Bank of India
 - NABARD (For SHGs)

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory) (3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
3. Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS

- Gundry Lisa K. & Kickul Jill R.(2007) Entrepreneurship Strategy: Changing Patterns in New Venture Creation, Growth, and Reinvention, SAGE Publications, Inc.
- Taneja& Gupta, (2001) Entrepreneur Development- New Venture Creation, Galgotia Publishing Company
- Barua, N. Borkakoty, A.(2005). Women Entrepreneurship .Published by S.B. Nangia for APH publishing Cooperation. New Delhi.

PRACTICALS

Course code: UHSEP 505

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max Marks: 50

External Assessment: 25

Internal Assessment: 25

1. SWOT analysis with respect to entrepreneurial competencies through case profiling of successful entrepreneurs and enterprises in Jammu: Any two
2. Achievement Motivation Lab-development of entrepreneurial competencies
3. Survey of an institution facilitating Entrepreneurship Development in J and K.
4. Preparation of a business plan for a Small Enterprise related to any field of Home Science

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

Vth SEMESTER**SKILL ENHANCEMENT COURSE (SEC)**

Course code: UHSPS 506

ACTIVITIES AND RESOURCES FOR CHILD DEVELOPMENT (PRACTICAL)

Max marks = 100

Duration of Examination: 3 hrs

External Assessment = 50

Internal Assessment = 50

*Recommended credits: 4(6 hrs. per week)***Objectives:.**

1. To understand the specific needs of growing children.
2. To plan appropriate activities, which can be used for working with different age groups
3. To develop teaching skills through micro teaching techniques .
4. To encourage students to observe materials available in the locality.
5. To develop play materials suitable for each age group.
6. Developing **Portfolios** of Activities planned for children

Syllabus for the examination to be held in the year 2018, 2019 and 2020**Unit 1 Develop play materials suitable for 0-6 years:**

- List the major developments that take place during early childhood years- Physical-Motor, Cognitive, Emotional -Social
- List activities that promote -manipulation, sensory experiences, concepts and language during early childhood years
- Prepare materials and design activities for sensory development/ stimulation.
- Prepare materials and design activities for movement and manipulation

Unit 2 Art Activities - Painting and graphics:

- Prepare a variety of brushes from different types of brooms, cotton, wool, strips of cloth, feather etc.
- Painting with different brushes, blow painting, block painting, finger painting, Painting on wet paper, painting masks.
- Drawing with crayons, dry and wet chalk.
- Tearing with all fingers, tearing with thumb and two fingers used in holding pencil, tearing on straight line and curved line, Cutting a design, Pasting- pieces of paper, cloth, sticks, leaves- in a collage or making a mosaic.

Unit 3 Art Activities:

- Modeling with clay, dough, plastacine, saw dust etc using accessories. Modeling with straw, match sticks, rope, wire, thick paper, fold and clot sculpture.
- Pasting papers on a balloon, when dry remove air and color to create material for teaching children
- Printing with strings, leaf, blocks, stencil printing, thumb, finger, spray painting, Printing on large pieces of paper (group activity).
- Decorating empty plastic bottles, boxes, masks etc.

Unit 4 Creative Activities:

- **Music and movements:** Learning to sign rhymes/songs with actions, Folksongs, Making simple musical instruments. Rhythmic body movements according to different beats and sounds. Dancing according to rhythm.
- **Puppetry:** Puppetry stick, singer, table top, rhythm, puppets glove puppets. Scripting for short puppet play.
- **Creative Drama:** Use of simple costumes and make-up to enhance characterization e.g. use of eye make-up to show different emotions or making simple caps and paper clothes for characters. Scripting simple dramatic presentation.

Unit 5 School Readiness Building Activities:**Communication – Language Arts**

- Promotion of language skills: listening, speaking, reading and writing. Sound games, talking, picture books, simple instructions, singing.
- Picture, object discussion. Reading and storytelling. Narration of stories, events in proper sequence. Poems, riddles. **Literature for Children:** Types of literature, appropriateness and criteria for selection of Books for infants and preschoolers: picture books, story books, information and concept books, number and alphabet books, poems. Story books – fable, folk tales, fairy tales and modern fantasy.
- **Mathematics, Environmental Science and Social Studies, Science Activities (Developing three each using the above mentioned techniques from Unit I to Unit V)**

Note: The students are required to develop Portfolio of the activities listed in the Units above. These are to be used for development stimulation during the Early Childhood Years

Note for practical examination (Total marks : 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

RECOMMENDED READINGS:

- Batra, P. (2010) Social Science learning in schools. Sage Publications.
- Beghetto, R., Kaufman, J. (2010) Nurturing creativity in classroom. Cambridge
- Bruke, E. (1990). Literature for the young child, Needham Heights: Allyn and Bacon.
- Carol, S. & Barbour, N. (1990). Early Childhood Education : An Introduction, IInd Edition.
- Chambers, P. (2008) Teaching mathematics. Sage publications.
- Dave, A. (1987). Pre-Mathematics Experiences for Young Children.
- Deviries, R., Kohlberg, L. (1987). Programs of early education, New York: Longman.
- Huck, C. (1971). Children's literature in elementary school. New York: Holt, Rihehart and Winston.
- Kaul, V. (1991). Early Childhood Education Programme, New Delhi: NCERT.
- Krishna, S., Menezes, J. and Jayaram, K. (1993). Set of ten books on environment studies. NewDelhi 110 016. The schools Environment Studies Network, C-1/4, Safdarjung.
- Kurien, S. (1988). Helping children learn, Bombay. Orient Longman.
- Liebeck, Panmala, How children learn mathematics, London : Penguin.
- Swaminathan, M. (1991). Play Activities for Young Children: UNICEF.
- Tarang :UllasmayAbhyas (1995).
- Taylor, B.J. (1988). A child goes Forth. (6th ed.). Minneapolis: Burgess Publishing Co.

SEMESTER V
SKILL ENHANCEMENT COURSE (SEC)
IMAGE STYLING AND FASHION ILLUSTRATION (PRACTICAL)

Course Code: UHSPS 304

Duration of Examination: 3 hrs

Max marks = 100

External Assessment =50

Internal Assessment = 50

Recommended credits: 4(6 hrs. per week)

Syllabus for the examination to be held in the year 2018, 2019 and 2020

Objectives:

1. To understand the practical aspects of the Clothing and Textiles
2. To introduce the concept of fashion illustrations to enable the students to benefit vocationally
3. To develop, in students, skills related to Image styling and Fashion Illustration.
4. To develop among students skills for garment designing.

Unit 1 Physical traits and personality:

- Body and figure types, Body proportion, Figure type & problems, Personality
- Figure analysis- identifying your physical self and Sketching body features, Stylization of model figures
- Developing a fashion figure male, female and children
- Basic figure drawing varying postures

Unit 2 Identifying clothing needs and wardrobe planning:

- Elements of a basic wardrobe
- Wardrobe analysis and organization
- Wardrobe style identification
- Organization and categorization of wardrobe, Optimizing wardrobe
- Personal shopping
- Preview of apparel / accessory stores and brands in context to style, size and budget

Unit 3

Introduction to fashion illustration:

- Vocabulary, Tools Creating textures using different mediums
- Collecting and studying textures
- Working with different media and techniques to simulate textures

Unit 4

Rendering fabric textures:

- Sketching silhouettes in various fabric textures :fur, satin, denim, tissue, silk, chiffon, knits, plaids, corduroy and others

UNIT 5

Garment types and its features in appropriate textures and styles Garment details (neckline, sleeves, pockets etc.)

- Sketching garments
- Design a costume for a specific event or profession

RECOMMENDED READINGS

1. Funder, D.C. 2001, The Personality Puzzle (2nded), New York: W.W. Norton
2. Phares, J.E. 1991, Introduction to Personality (3rded), New York: Harper Collins
3. Abing, B. 2001, Fashion Rendering with Color, Illustrated ed. Prentice and Hall.
4. Ireland, P.J. 1996, Fashion Design Illustration- Men, B.T. Batsford, London.
5. Ireland, P.J. 2003, Introduction to Fashion Design, B.T. Batsford, London.

Note for practical examination (Total Marks: 100)

Practical	Syllabus to be covered in examination	Weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		50 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	50 (40% paper + 10% viva voce)
Total		100

SEMESTER V**SKILL ENHANCEMENT COURSE (SEC)****Course code: UHSTS 305****NUTRITION HEALTH COMMUNICATION(THEORY)****Max marks = 100****External Assessment =80****Internal Assessment = 20****Duration of Examination: 2.30hrs***Recommended credits: 4(4 hrs. per week)***Syllabus for the examination to be held in the year 2018, 2019 and 2020****THEORY****Objectives:**

1. To develop among students an understanding of the Need for Nutrition Health Communication
2. To make them aware about different nutrition health programmes operational in India
3. To introduce them to various communication techniques for Behaviour Change and application of these on ground

Unit 1 Nutrition and Health Education:

- Objectives, principles and scope of nutrition and health education and promotion
- Need for Nutrition Health Education in India
- National Nutrition Policy and Programmes - Integrated Child Development Services (ICDS) Scheme, Mid Day Meal Programme (MDMP), National Programmes for Prevention of Anaemia, Vitamin A deficiency, Iodine Deficiency Disorders

Unit 2 Concepts and Theories of Communication in Nutrition – Health:

- Definitions of concepts
- Formal- Non-formal Communication, Participatory communication
- History, need and relevance of NHC in India

Unit 3 The Components and Processes of NHC:

- Concept of Behavior Change Communication (BCC) from imparting information to focusing on changing practices.
- Components of BCC: Sender, Message, Channel, Receiver
- Various types of communication – interpersonal, mass media, visual, verbal/ non-verbal.
- Features of successful BCC

Unit 4 Programs and Experiences of NHC: Global and Indian perspective:

- NHC in developed and developing nations: some example
- Evolution of NHC in India: Traditional folk media to modern methods of communication
- Communication for urban and rural environment; for target specific audience.

Unit 5 Nutrition - Health – Communication in Government Programs and NGOs

- Evolution of NHC/ IEC in Government nutrition health programs - shift in focus from knowledge gain to change in practices.
- Overview of NHC/IEC in government programs (Activities, strengths and limitations)
- NHC in ICDS, RKSK
- Nutritional counseling in micronutrient deficiency control programs: Control of IDA

Learning Activities:

1. Visit to an ongoing NHC program in ICDS: one rural, one urban.
2. Visit to a health centre (ANC clinic run by Government health department and observe quality of counseling imparted to pregnant women (especially awareness of anemia, importance of IFA). [All the above will be assessed by the students for the plus and minus points from the NHC perspective].
3. To visit an NGO either rural or urban and observe one NHC program implemented for women, school children or adolescence (For all the above observation appropriate observation check lists will be made and used)
4. Based on the above observations and interviews
 - a. To design and plan NHC sessions on a specific nutrition topic for any vulnerable group: children, adolescents, women taking into account all components of NHC.
 - b. Submit the visual, the script of the session: Hindi / English, the communication strategy and evaluation plan.
 - c. To implement one NHC session in the field.

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ♦ The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory) (3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
3. Five (5) long answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS:

1. Field Guide to Designing Communication Strategy, WHO publication-2007.
2. Behaviour Change Consortium Summary(1999-2003),<https://www.ncbi.nlm.nih.gov> › NCBI › Literature
3. Communication Strategy to Conserve/Improve Public Health. John Hopkins University- Centre for Communication Programs.
4. Michael Favin and Marcia Griffiths (1999), Nutrition Tool Kit-09-Communication for BehaviourChange in Nutrition Projects. Human Development Network-The World Bank -1999
5. Harvard Institute of International Development (1981) Nutrition Education in Developing Countries, New York: Oelgeschlager Gunn and Hain Publishers Inc.
6. Hubley. J (1993) Communicating Health. London: Teaching Aids at Low Cost, London, UK.
7. Academy for Educational Development (1988). Communication for Child Survival, AED, USA.
8. Facts for Life (1990). A Communication Challenge. UNICEF / WHO / UNESCO / UNFPA, UK.
9. Wadhwa A and Sharma S (2003). Nutrition in the Community-A Textbook. Elite Publishing House Pvt. Ltd. New Delhi.
10. Park K (2011). Park's Textbook of Preventive and Social Medicine, 21st Edition. M/s BanarasisdasBhanot Publishers, Jabalpur, India.
11. Bamji MS, Krishnaswamy K and Brahmam GNV (Eds) (2009). Textbook of Human Nutrition, 3rd
12. Ed. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
13. ICMR (1989) Nutritive Value of Indian Foods. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
14. ICMR (2011) Dietary Guidelines for Indians – A Manual. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
15. Jelliffe DB, Jelliffe ERP, Zerfas A and Neumann CG (1989). Community Nutritional Assessment with special reference to less technically developed countries. Oxford University Press. Oxford.
16. World Health Organization (2006). WHO Child Growth Standards: Methods and development: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age (<http://www.who.int/childgrowth/standards/en/>).

UNIVERSITY OF JAMMU

SYLLABI AND COURSES OF STUDY FOR **B.Sc. HOME SCIENCE SEMESTER VI** FOR THE EXAMINATION TO BE HELD IN THE YEARS **2019, 2020 and 2021**

Course Code	Subject	Maximum Marks			Credits	Duration Of Examination
		University Examination	Internal Assessment			

A CANDIDATE HAS TO CHOOSE ANY 3 OUT OF 5 DISCIPLINE SPECIFIC COURSES

UHSET 601	Public Nutrition and Dietetics	80	20	4	2.5 hrs
	UHSEP 601(Practicals)	25	25	2	3hrs
UHSET 602	Traditional Indian Textiles	80	20	4	2.5 hrs
UHSEP 602	Practicals	25	25	2	3hrs
UHSET 603	Children with Disabilities	80	20	4	2.5 hrs
UHSEP 603	Practicals	25	25	2	3 hrs
UHSET 604	Basics of Design Application	80	20	4	2.5 hrs
UHSEP 604	Practicals)	25	25	2	3hrs
UHSET 605	Extension Management	80	20	4	2.5 hrs
UHSEP 605	Practicals)	25	25	2	3 hrs
UHSTS 606*	Life Skill Education (Theory)	80	20	4	2.5 hrs
UHSPS 404*	Basic Bakery Technology & Entrepreneurship (Practicals)	50	50	4	6 hrs
UHSPS 405*	Textile Design (Practicals)	50	50	4	6 hrs

*Students to select any one from the three Skill Based Courses

SEMESTER VI
DISCIPLINE SPECIFIC ELECTIVE (DSE)
PUBLIC NUTRITION AND DIETETICS

Course code: UHSET 601
Duration of Examination: 2.5 hrs

Max marks = 100
External assessment =80
Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

- To enable the students to understand
- Concept of public nutrition
- Concept of Dietetics
- Common nutritional deficiencies and diseases

Unit 1 Concept and scope of public nutrition and dietetics

- Definition and multidisciplinary nature of public nutrition
- Concept and scope of Public Nutrition, Population groups vulnerable to nutritional deficiencies in India
- Role of Public nutritionist
- Definition, Concept and Scope of Dietetics

Unit 2 Assessment of nutritional status: methods and application

- Direct methods – anthropometry, biochemical and clinical examination
- Indirect methods – dietary surveys, vital statistics
- Objectives, principles and scope of nutrition and health education

Unit 3 Common nutritional deficiencies :

- Etiology, prevalence, clinical features, prevention and management of nutritional deficiencies:
 - Under nutrition
 - PEM
- Vitamin A deficiency
- Nutritional Anemias,
- Iodine Deficiency Disorders
- Deficiency Disorders
- Over nutrition

Unit 4 Introduction to Diet Therapy

- Basic concepts of diet therapy
- Therapeutic modifications of the normal diet
- Nutrition Programs in India for vulnerable groups

Unit 5 Common diseases/ disorders

- Etiology, clinical features and nutritional management of:
 - Febrile disorders and HIV-AIDS
 - Diarrhea, constipation
 - Underweight, overweight and obesity
 - Diabetes and Cardiovascular diseases

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

♦ The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)

3. Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS:

- Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, Puri S (2013). Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.
- Stacy Nix (2009). William`s Basic Nutrition and Diet Therapy, 13th Edition. Elsevier Mosby.
- Wadhwa A and Sharma S (2003). Nutrition in the Community- A Textbook. Elite Publishing Pvt Ltd, New Delhi.
- ICMR (1989) Nutritive value of Indian Foods. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
- ICMR (2011) Dietary Guidelines for Indians – A Manual. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.
- Seth V and Singh K (2007). Diet Planning through the Life Cycle Part II: Diet Therapy.
- A Practical Manual, 4th edition. Elite Publishing House Pvt. Ltd.
- Babita, B. & Kusuma, D.L.(2010).Nutritional correlates of Body mass index. Discovery Publishing house Pvt. Ltd.
- Singh J.(2008). Handbook of Nutrition and Dietetics. Published by : Lotus Press, New Delhi.

PRACTICALS

Course code: UHSEP 601

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

1. Assessment of nutritional status: 24 hour dietary recall, anthropometry, clinical assessment
2. Development of low cost nutritious recipes for population groups vulnerable to nutritional deficiencies
3. Visiting an Anganwadi Centre to assess their Nutritional Component for adolescent girls, children and wmen
4. Planning and preparation of diets/dishes for individuals suffering from:
 - Febrile disorders
 - Diarrhea, constipation
 - Underweight, overweight/ obesity
 - Diabetes and Cardiovascular diseases

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

SEMESTER VI
DISCIPLINE SPECIFIC ELECTIVE (DSE)
TRADITIONAL INDIAN TEXTILES

Course code: UHSET 602
 Duration of Examination: 2.5 hrs

Max marks = 100
 External assessment =80
 Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. To enable students to gain knowledge of traditional textiles of India
2. To understand the status of traditional textiles in modern India
3. To understand the importance of conservation and care of traditional textiles

Unit 1 Study of Woven textiles with reference to history, production centers, techniques, designs, colors and products

- Benaras Brocades , Jamdanis and Balucharis of Bengal, Kani Shawls of Kashmir, Patt of Bhaderwah, Ladakhi Textiles

Unit 2 Study of embroidered textiles with reference to history, production techniques, design, colours & products

- Kanthas of Bengal, Kasuti of Karnataka, Phulkari of Punjab, Chikankari of Uttar Pradesh, Kashida of Kashmir, Gujarat embroideries, Rumal of Jammu and Chamba

Unit 3 Study of Textile Crafts of India: Dyed, Painted and Printed Textiles: with reference to history, production centers, techniques, designs, colours and products

- Kalamkaris of Andhra Pradesh, Dabu printing of Rajasthan , Ajarakh prints of Gujarat, Samba Cheent
- Bandhnis of Rajasthan and Gujarat, Ikats- Patola of Gujarat, Bandhas of Orissa, Teliya Rumal

Unit 4 Status of Traditional Textiles in Modern India:

- Evolution and socio-economic significance of Khadi, Handloom and Handicraft sector
- Sustenance of traditional textile crafts: Issues and Governmental Initiatives
- Interventions by organizations: Governmental and NGO's

Unit 5 Conservation of Textiles

- Factors affecting deterioration of textiles
- Care and storage of textiles
- Current practices, ethics and material used in conservation of textiles in museums.

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

◆ The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
3. Five (5) long answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS

1. Agarwal, O.P., (1977), Care and Presentation of Museum projects – II, NRL
2. Chattopadhyaya, K.D., (1995), Handicrafts of India, Wiley Eastern Limited, N Delhi
3. Das, Shukla, (1992), Fabric Art- Heritage of India, Abhinav Publications, N Delhi

PRACTICALS

Course code: UHSEP 602

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

1. Embroidery stitches of traditional embroideries especially from J and K
2. Product Development: Designing and construction of one costume using traditional art.
3. Development of motifs (geometrical, floral, stylized and abstract motifs) using different color schemes
4. Portfolio development-Traditional textile crafts:
 - Woven
 - Painted/printed
 - Embroideries
5. Visit to any Craft Center in Jammu

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

SEMESTER VI
DISCIPLINE SPECIFIC ELECTIVE (DSE)
CHILDREN WITH DISABILITIES

Course code: UHSET 603
Duration of Examination: 2.30 hrs

Max marks = 100
External assessment =80
Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020& 2021

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. *To understand different types of disabilities among children.*
2. *To identify common needs and challenges facing families caring for children with special needs.*
3. *To understand the Socio-cultural and Educational Context of the children with disabilities*
4. *To know about laws and policies for Children with Disabilities.*

THEORY

Unit 1 Introduction to Childhood Disabilities

- Defining disabilities
- Models of disability
- Classifying disabilities
- Demography of childhood disabilities in India

Unit 2 Common Childhood Disabilities

Identification, Assessment and etiology with reference to:

- Locomotor disability
- Visual disability
- Auditory and Speech disability

Unit 3 Common Childhood Disabilities

Identification, Assessment and etiology with reference to:

- Intellectual disability
- Autism
- Learning Disability

Unit 4 Children with Disabilities and Society

- Prevention and management of different disabilities
- Perspectives on disability: Individual and social
- Families of Children with disability- Issues and support
- Social construction of disability: Attitude towards disability-family, school, society and media

Unit 5 Educational Practices for children with Disabilities

- Educational provisions for children with special needs
- Rights of Person with Disability
- UNCRPD
- Special policies and laws - PWD Act of India

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

◆ The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)

3. Five (5) along answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS:

- Chopra, G. (2012). *Early Detection of Disabilities and Persons with Disabilities in the Community*. New Delhi: Engage publications
- Chopra, G. (2012). *Stimulating Development of Young Children with Disabilities at Anganwadi and at Home: A Practical Guide*. New Delhi: Engage publications.
- Sharma, N. (Ed) (2010). *The Social Ecology of Disability-Technical Series -3*, Lady Irwin College. Delhi: Academic Excellence.
- Mangal, S. K. (2007). *Exceptional children: An introduction to Special Education*. New Delhi: Prentice Hall of India.
- Jangira, N.K. (1997) "Special Educational Needs of Children and Young Adults: An Unfinished Agenda," *Education and Children with Special Needs: From Segregation to Inclusion*, Ed. Seamus Hegarty, Mithu Alur, Thousand Oaks: Sage Publications Inc.
- Karna, G. N. (1999). *United Nations and Rights of Disabled Persons: A study in Indian Perspective*. New Delhi: A.P.H. Publishing Corporation.
- Mani, R. (1988). *Physically handicapped in India*. Delhi: Ashish Publishing House.
- Mastropieri, M. A., & Scruggs, T. E. (2004). *The Inclusive Classroom: Strategies for Effective Instruction*. NY: Pearson.
- Bhuimali, a. (2009). *rights of Disabled women and Children in India*. published by Serial publications. New Delhi.
- Reddy, G.L. & Sujathamalini, J. (2010). *Children with Disabilities: Awareness, Attitude and Competencies of Teachers*. discovery Publishing House.
- Shah, R.K. (2005). *Learning Disabilities: Aavirkhar Publishers, Distributors Jaipur*.
- Biswas, P.c. (2004). *education of children with Visual Impairment (In inclusive School)*. Abhijeet publications. Delhi.

PRACTICALS

Course code: UHSEP 603

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max Marks: 50

External Assessment: 25

Internal Assessment: 25

1. Visits to organisations working with children with disabilities in Jammu to know about their Management, Funding & Facilities provided
2. Observing children with disabilities in families and institutions
3. Planning developmentally appropriate material for children with disabilities: Any 2
4. Exploring audio-visual sources with reference to children with disabilities and their families

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva vose/ attendance etc		25 (including 20% for attendance, 40% for viva vose + test and 40% for day to day performance)
Final practical performance + viva vose (external examination)	100% syllabus	25 (40% paper + 10% viva vose)
Total		50

SEMESTER VI
DISCIPLINE SPECIFIC ELECTIVE (DSE)
BASICS OF DESIGN APPLICATION

Course Code: UHSET 604

Duration of Examination: 2.30 hrs

Max marks = 100

External assessment =80

Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. *To create awareness about art and interior design*
2. *To acquaint students with principles of selection and care of furniture and furnishings*

Unit 1

Design Fundamentals

- Objectives of Art & Interior Design.
- Types of Design: Structural & Decorative.
- Elements of Content: Space, Point, Line, Shape, Form, Texture, Light & Color.
- Elements of Order: Scale, Similarity, Proximity, Sequence, Trends, Themes, Geometrical Organization.

Unit 2 Color & its Application

- Basics of color
- Dimensions of color.
- Importance of color & its role in creation of the design.
- Color Harmonies
- Colour Theories
 - Pigment Theory
 - Psychologist Theory
 - Chemist Theory
 - Physicist Theory
- Principles of design as applied to color use

Unit 3 Principles of Design and Interior Decoration

- Principles of Composition – Rhythm, Balance, Proportion, Emphasis, Unity
- Composition of a Drawing – Harmony, Clarity, Adequacy
- Floor decoration
- Flower decoration
- Design Drawing - Drawing as a language to explore communicate Ideas

Unit 4 Furniture & Furnishings:

- Contemporary Trends in Interior Design with respect to furniture, furnishings & accessories.
 - Furniture – Types, Construction, Selection and purchase, Arrangement, Care and maintenance
- Furnishings – Selection, care and maintenance of fabrics used for -Soft furnishings: curtains and draperies, upholstered furniture, cushions and pillows, etc.
- Floor coverings

Unit 5 Accessories:

- Uses, Classification, Design, Selection & Arrangement of accessories
- Traditional and Modern Surface Finishes – types and uses
 - Furniture
 - Wall
 - Floor
 - Ceilings
 - Roofing
- Lighting applications - Energy efficient lighting design – number and type of lamps and luminaries for efficiency in lighting

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.
1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)
 2. Five(5) medium answer to the questions representing all units/syllabi i.e at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
 3. Five (5) long answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS:

- Lawrence M, (1987), Interior Decoration, New Jersey: Chartwell Books.
- Riley & Bayen., (2003), The Elements of Design, Mitchell Beazley.
- Mehta, J.S. (2011). Text Book of Home Science.Prem C. Bakliwal for Aavirkar publishers, Distributors Jaipur.
- Srinivasan, K., Verghese, M.A. and Ogala, N.N.(2017). Home Management. Edition 2nd.

PRACTICALS

Course code: UHSEP 604

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

- Drawing - Introduction to drawing instruments & tools
 - Drawing lines
 - Lettering
 - Sketching (figures, buildings, trees & plants, vehicles)
- Preparation of catalogue comprising pictures denoting application of Art & Elements of Design
- Drawing Colour Wheel, Dimension & Harmonies of Colour.
- Floor plans with rendering
 - Making different types of designs
 - Showing various color schemes on any design

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

**SEMESTER VI
DISCIPLINE SPECIFIC ELECTIVE (DSE)
EXTENSION MANAGEMENT**

Course code: UHSET 605
Duration of Examination: 2.30 hrs

Max marks = 100
External assessment =80
Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021
Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. *To understand the concept of extension, extension methods and its role in development.*
2. *To understand the role of Extension in Adult Learning*
3. *To understand the participatory approach to extension and development*
- 4.

Unit 1 Conceptual Dimension of Extension Education

- A) Conceptual Framework:
- Extension as Education
 - Extension as communication Intervention
 - Extension as persuasion
 - Extension as transfer of technology
- B) Extension as a tool for Human Resource Development (HRD)

Unit 2 Teaching Learning Processes in Extension: Meaning, concept and scope of Adult Education

- Adult Education programme in India
- Adult Education and Extension
- Characteristics of Adult Learners; Difference between Adult & Child learning
- Learning theories; Characteristics of Adult learning, developmental tasks of Adults
- Factors associated with Adult learning.
- Motivating and sustaining Adult learners

Unit 3 Participatory Extension

- Concept of Participatory Change
- Participation and Directed Social change
- Typology of peoples' participation
- Obstacles to peoples' participation
- Participatory technology development

Unit 4 Adoption and diffusion of Innovations

- Concept of Adoption and stages of adoption – decision making process
- Concept of diffusion- diffusion process, elements and their functions
- Concept of innovations –stages of innovation, factors influencing adoption of innovations

Unit 5 Women in Agriculture: Importance of Resource Management for Farm Women in India

- Role of farm women in Indian Agriculture, Methods of Building extension contact with farm women
- Needs of farm women: Importance of extending the knowledge of resource management to farm women
- Time, money and resource management for farm women, Gender Neutral Technology for farm women

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

◆ The external examinations in theory shall consist of the following.

1) Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed

explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)

2.Five(5) medium answer to the questions representing all units/syllabi i.e at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)

3.Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS

- Mikkelsen, Britha, (2002), Methods for Development Work and Research. New Delhi: Sage Publications
- Dale R, (2004) Evaluating Development Programmes and Projects. New Delhi : Sage Publications
- Kumar & Hansra, (1997) Extension Education for Human Resource Development. New Delhi: Concept Publishers.
- Supe, S.V.(2005) An Introductionj to Extension Educations. Oxford and IBH Publish Company pvt. Ltd.
- Reddy, A.(2011). Extension education. Edition 4. Publisher, Sree Lakshmi Press.

PRACTICALS

Course code: UHSEP 605
 Duration of Examination: 3hrs
 Recommended credits: 2 (3hrs. per week)

Max marks: 50
 External Assessment: 25
 Internal Assessment: 25

- Visiting Life Long Learning Programs or Adult Learning Programs available in J and K
- Doing Participatory appraisal of a rural area to understand the role of Women in Farm Activities
- Developing teaching learning material for extending knowledge of management of resources to farm women:
 - Time Management
 - Money Management
 - Energy Management

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva vose/ attendance etc		25 (including 20% for attendance, 40% for viva vose + test and 40% for day to day performance)
Final practical performance + viva vose (external examination)	100% syllabus	25 (40% paper + 10% viva vose)
Total		50

SEMESTER VI
SKILL ENHANCEMENT COURSE (SEC)
LIFE SKILLS EDUCATION (THEORY)

Course code: UHSTS 606

Duration of Examination: 2.30 hrs

Recommended credits: 4 (6hrs. per week)

External Assessment: 80

Internal Assessment: 20

Objectives:

1. *To equip youth with the social and interpersonal skills that enable them to cope with the demands of everyday life.*
2. *To build self-confidence, encourage critical thinking, foster independence and help people to communicate more effectively.*
3. *To equip youth to cope with the increasing pace and change of modern life.*
4. *To assess life skills, and to plan and conduct Life skill trainings.*

THEORY

Unit 1 Concept and Meaning of life skills

- Definitions and concept of life skills and life skills education, Evolution of Life Skills
- Importance in daily living; Criteria for using life skills.
- Core Life Skills - classification and concept
- Theoretical perspectives and models to understand life skills education.

Unit 2 Components for Planning & Organizing Life Skills Programs: Understanding group characteristics and needs

- Life skills in context
- Focusing on cultural practices that govern everyday life.
- Analyzing the gender nuances that exist within the group.
- Self components to imparting life skills program: critical thinking skills, decision making skills, interpersonal communication skills, coping with stress and emotions; self management skills, etc.

Unit 3 Importance of communication in imparting life skills education

- Concept and Importance of communication
- Aspects to develop social potentials (effective listening, speaking, building and maintaining relationships, understanding group dynamics and functioning in groups, delegating responsibilities)
- Understanding and developing self-skills/potential: self-awareness, self-esteem self confidence, creative thinking, interpersonal skills, etc.
- Use of participatory techniques and methods: Individual exercises, Group activities, games etc.
- Communicating with the audience: receiving feedback, handling questions, etc.

Unit 4 Organizing a Life Skills Program and Assessing Life skills

- Planning a need based viable life skills program (select components)
- Determining the purpose, collecting materials, organizing content.
- Getting prepared for the presentation: psychological level
- Delivering the presentation
- **Life Skills Assessment:** Scales and quantitative techniques, Qualitative approaches

Unit 5 Life Skills and Youth Development

- Adolescence and Youth- Definitions, Conception- socio cultural perspectives
- Youth demographics and role in society
- Challenges of adolescence and youth development
- Formal and Non formal approaches to youth development
- Positive Youth Development

Learning Experiences

1. Students may be given several in house experiences to observe and evaluate existing life skills programs. They may also get experiences to interact with experts in the discipline through panel discussions and similar organized experiences.
2. Visiting and observing Life skills education programme
3. Critique formal and non-formal life skills programmes
4. Evaluate approaches and activities of life skills education for different target groups

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

♦The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
3. Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted). (15×2=30)

RECOMMENDED READINGS

1. Agochiya D. 2010, life competencies for adolescents. Training manual for facilitators, teacher and parents. Sage Publications.
2. Dakar Framework for Action,(2000).Education for All: Meeting our Collective Commitments, Dakar, Senegal
3. Peace Corps, OPATS.2001, Life Skills Manual.
4. Robbins S.P, Hunsaker P.L, Training in Interpersonal Skills (5th eds), PHI Learning Pvt. Ltd.
5. National Aids Control Orgnization, 2008, Adolsecence Education Programme, Life Skills Development.
6. Nair. A. Radhakrishnan, (2010). Life Skills Training for Positive Behaviour , Rajiv
7. Gandhi National Institute of Youth Development, Tamil Nadu.
8. Nair .V. Rajasenan, (2010). Life Skills, Personality and Leadership , Rajiv Gandhi National Institute of Youth Development, Tamil Nadu.
9. Url: multimedia.peacecorps.gov/.../pdf/.../M0063_lifeskillscomplete.pdf
10. Url: www.nacoonline.org/.../AEP%20-%20Teachers%20Workbook.pdf

SEMESTER VI
SKILL ENHANCEMENT COURSE (SEC)

Course Code: UHSPS 404 BASIC BAKERY TECHNOLOGY AND ENTREPRENEURSHIP
(PRACTICAL)

Duration of Examination: 3 hrs

Max marks = 100

External Assessment =50

Internal Assessment = 50

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits: 4(6 hrs. per week)

Objectives:

1. To develop in students awareness and skills related to vocation in Baking Technology
2. To introduce basic baking techniques- Indian and Non Indian
3. To give them hands on training to enable them to set up their own Baking Units
4. To give them concept of Modification of bakery products to make them nutritious and applicable for persons with different requirement

Unit 1

- History of Bakery, Current status, economic importance of Bakery Industry in India.
- Product types, nutritional quality and safety of products, pertinent standards & regulations. Present Trends - Prospects of Bakery
- Nutrition facts of Bakery.
- Raw materials used in Bakery - Wheat: Structure and Composition of wheat, Varieties of Wheat, Wheat products - Whole wheat flour, Maida, semolina, Role of Gluten

Unit 2

- Yeast, Yeast Production
- Enzymes - their functions in dough,
- Sugar and Milk - Properties and Role of milk and Sugar in Bakery,
- Leavening, flavouring, Nuts and fruits - their function in bread making, Cocoa and Chocolate

Unit 3

- Types of breads, bread faults and remedies.
- Biscuits: Ingredients - Types of biscuits - Processing of biscuits - faults & Remedies. Cream crackers, soda crackers, wafer biscuits & matzos, puff biscuits, Short dough biscuits, Wafers,
- Cakes - types - Ingredients - Processing of cakes - Problems - Remedies
- Pizza and pastries - their ingredients and Processing

Unit 4

- Indian traditional baked products
- Modified bakeryModification of bakery products for people with special nutritional requirements e.g. high fibre, low sugar, low fat, gluten free bakery products.

Unit 5

- Setting up of a Bakery Unit - Bakery equipment required - types - Selection – Maintenance
- Bakery norms and Standards, materials of construction of Food Equipments.
- Illumination and ventilation. Cleaning & sanitization
- Maintenance of Food Plant Building : Safety Color Code, Roof Inspection, Care of Concrete floors

REFERENCES:

1. Dubey, S.C. (2007). Basic Baking 5th Ed. Chanakya Mudrak Pvt. Ltd.
2. Raina et.al. (2003). Basic Food Preparation-A complete Manual. 3rd Ed. Orient Longman Pvt. Ltd.
3. Manay, S. & Shadaksharaswami, M. (2004). Foods: Facts and Principles, New Age Publishers.
4. Barndt R. L. (1993). Fat & Calorie – Modified Bakery Products, Springer US.
5. Samuel A. Matz (1999). Bakery Technology and Engineering, PAN-TECH International Incorporated.
6. Faridi Faubion (1997). Dough Rheology and Baked Product Texture, CBS Publications.
8. Samuel A. Matz (1992). Cookies & Cracker Technology, Van Nostrand Reinhold

Note for practical examination (Total marks: 100)

Practical	Syllabus to be covered in examination	Weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		50(including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	50 (40% paper + 10% viva voce)
Total		100

SEMESTER VI
SKILL ENHANCEMENT COURSE (SEC)
TEXTILE DESIGN (PRACTICALS)

Course Code: UHSPS 405

Duration of Examination: 3 hrs
Recommended credits: 4 (6hrs. per week)

Max marks: 100
External Assessment: 50
Internal Assessment: 50

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Objectives:

1. *Developing among students skills to start a vocation in Textile Designing*
2. *To make them understand the basic requirements and principles of textile designing*
3. *Illustrate various types of designs and techniques in different colour media*
4. *Implement craft based work for fabrics*
5. *Use different textile designing techniques to develop apparel*

Unit I Basic Requirements for Textile Design

- Drawing tools and equipment
- Drawing forms: dot to form; geometric, simplified, naturalized, stylised, abstract
- Design development by placements
- Fabric manipulation-cuts, removal of threads

Unit II Applications of Principles of Design

- Color study -color wheel, value, intensity, harmonies
- Lines-Aspects and effects of lines - curved, structural, visual, illusion
- Application of principles of design - proportion, balance, rhythm, emphasis and unity

Unit III Making Designs through Color Application

- Painting
- Dyeing- Dyeing of yarns and fabrics with different fiber and fiber blend, shadematching: Tie and dye, Batik
- Printing- Developing designs for block, stencil, screen printing and hand painting.

Unit IV Surface Decoration

- Embroidery, Embellishments: Learning different stitches from different regions of India
 - Surface layering:
 - Appliqué
 - Patchwork
 - Quilting
 - Pleats
 - Tucks

V Product development using the above designing techniques

- Preparing a Project Report / Design Proposal.
- Screen Printing (Towels)
- Hand painting with Dye, Tie and Dye, Block printing (Sarees or Bed Cover)
- Combination of relief & resist method of printing. (Designing or Batik)-Wall hanging.
- Spray Painting (Table Mats)
- Fabric Painting, Organdy table cloth painting in Floral/ Traditional using center line Designs
- Making Apron by combining any three different types of textures.

RECOMMENDED READINGS

1. Juracek, A. Judy,2000,Soft Surface, Thames & Hudson Ltd.
2. Milne D'Arcy Jean,2006, Fabric Left Overs, Octopus Publishing Group Ltd.
3. Singer Margo,2007.Textile Surface Decoration-Silk & Velvet, A&C Black Ltd
4. Susan Miller & Joost Elfers, 2003. TextileDesign, London : Thames & Hudson

5. Norah Gillah, 2003. Design and Patterns, London : Thames & Hudson .

Note for practical examination (Total marks: 100)

Practical	Syllabus to be covered in examination	Weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		50(including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	50 (40% paper + 10% viva voce)
Total		100

Semester No.	Core Course (12) 4+2Credits	Ability Enhancement Compulsory Courses (AECC) (2) 04 Credits	Skill Enhancement Course (SEC) (4) 04 Credits	Elective Discipline Specific Course (6) Any 03 in 5/6 th Semesters 4+2 Credits
I.	101: Basic Nutrition and Food Chemistry	AECC		
	CC2:			
	CC3:			
II.	201: Food Microbiology, Sanitation and Hygiene	AECC		
	CC5:			
	CC6:			
III.	CC7: Post Harvest Technology		Technology of Fruits and Vegetables	
	CC8:			
	CC9:			
IV.	CC10: Sensory Evaluation and Food Packaging		Basic Baking Technology and Entrepreneurship	
	CC11:			
	CC12:			
V.			Food Product Development and Entrepreneurship	Food Adulteration and Food Toxicology
				Food Analysis & Instrumentation
				Technology of Food Fermentation, Malting & Brewing
VI.			Technology of Processing Milk and Milk Product	Research Methodology
				Packaging Technology
				Operation Research and Plant Layout
Credits	6X12=72	4X2=8	4X4=16	6X6=36
Total				132 Credits

University of Jammu
 SYLLABI AND COURSES OF STUDY FOR **FOOD SCIENCE AND QUALITY CONTROL (FSQC)** FOR THE
 VTH SEMESTER EXAMINATIONS TO BE HELD IN THE YEARS **2018, 2019 AND 2020**

Course Code	Subject	Maximum Marks		Credits	Duration Of Examination
		University Examination	Internal Assessment		

***A CANDIDATE HAS TO CHOOSE ANY 1 OUT OF 3 DISCIPLINE SPECIFIC COURSES**

UFSET 501*	Food Adulteration & Food Toxicology	80	20	4	2.5 hrs
	UFSEP 501 (Practicals)	25	25	2	3hrs
UFSET 502*	Food Analysis and Instrumentation	80	20	4	2.5 hrs
UFSEP 502	Practicals	25	25	2	3hrs
UFSET 503*	Technology of Fermentation, Malting and Brewing	80	20	4	2.5 hrs
UFSEP 503	Practical	25	25	2	3 hrs
UFSTS 504	Food Product Development and Entrepreneurship(Theory)	80	20	4	2.5 hrs

Semester V

**DISCIPLINE SPECIFIC ELECTIVE COURSES
FOOD ADULTERATION & FOOD TOXICOLOGY**

Course Code: UFSET 501

Max marks = 100
External assessment =80

Duration of Examination: 2.5 hrs

Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. To introduce students to the concept of Food Adulteration.
2. To know various food laws and its implications.
3. To understand various quality parameters of various food groups.
4. To know various toxins present in various foods.
5. To give students the concept of various harmful substances being added to various foods.

UNIT 1 Food Adulteration, Food Laws and Consumer Protection

- Food Adulteration: Definition, Health hazards caused by various adulterants.
- Food Laws: Voluntary, Mandatory-National & International
- Role of voluntary agencies and legal aspects of consumer protection

UNIT 2 General Composition and quality criteria for the following:

- i. Milk and Milk products
- ii. Oil and Fats
- iii. Spices and condiments
- iv. Food Grains
- v. Fruit and Vegetables products
- vi. Flesh Food
- vii. Beverages-Alcoholic and Non Alcoholic

UNIT 3 Food Toxicology

- Definition- Toxicology, importance, scope, basic divisions, Goals, Basic concept of Toxicology
- Naturally occurring toxins in various foods: toxins in plant foods, sea foods toxins, anti vitamins, radioactive metals in foods, mineral compounds in food & water.
- Chemical contaminants- pesticide residues- types of pesticides- automobile emissions(CO₂, SO₂,NO), Hydrocarbons- photochemical products- heavy metals(Mercury, Arsenic, Lead, Cadmium, Aluminum, Tin),

UNIT 4 Food Adulterations

- Introduction and Classification of Food Additives- Antioxidants, Preservatives, Emulsifiers, Stabilizers, sweeteners, thickening agents, chelating agents, curing agents, leavening agents, anti caking agents, coloring agents, flavoring agents.
- Substances intentionally added to foods: Antioxidants, Colour, Stabilizers
- Food borne illness: Microbial and Parasitic Food Poisoning and food infections, Mycotoxins – aflatoxin, Bacterial toxin.

UNIT 5 Health issues in Foods

- Integrated pest management in food commodities. Pesticides and health hazards. Bio-pesticides. Safety devices. Sanitation in food processing and handling units.
- Carcinogens - mechanism of chemical carcinogens and other health problems
- Genetically engineered Food and their safety.

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory) (3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
3. Five (5) long answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

REFERENCES :

1. Food & Beverage laws-Food safety and Hygiene-Jagmohan Negi
2. Toxicology- A. Sood
3. Aquatic Pollution and Toxicology – R.K. Trivedy
4. Toxicology and Environmental Health – S.B. Vohora
5. Understanding Toxicology- Bruno Schiefer
6. B. Jacob, Chemical analysis of food and food products by Morris, 3rd Ed
7. Nutritional and Toxicological aspects of Food Processing (ed.) Walker and E.Quattrucci, Taylor and Francis New York 1980
8. Handbook of Analysis; QC for Fruits & Vegetable Products
9. E.M.Master; Standard Methods for examination of Dairy Products
10. **Website: www.fssai.gov.in**

PRACTICAL

Course code: UFSEP 501

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

1. To Study distillation method
2. Preparation of standard solutions:
 - i. Percent Solution
 - ii. Normal Solution
 - iii. Molar Solution
3. To check food sample by T.S.S.
4. To study densitometer
5. Determination of Specific gravity of given sample (milk, oil)
6. Determination of artificial colors
7. Examination of toxins present in foods.
8. To check the quality criteria of food products.

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

Semester –Vth

DISCIPLINE SPECIFIC ELECTIVE COURSES
FOOD ANALYSIS AND INSTRUMENTATIONCourse code: *UFSET 502*

Max marks = 100

Duration of Examination: 2.5 hrs

External assessment =80

Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020*Recommended credits : 4(4 hrs. per week)***THEORY***Objectives:*

1. To familiarize the students with the working and importance of various equipments being used in analysis of food.
2. To understand the concept of preparing samples for various analysis.
3. To know the basic composition of various foods.
4. To learn various chemical methods of food analysis.
5. To develop in students awareness and skill related to entrepreneurship.

UNIT 1

- Spectrophotometer
- Radioactive tracer techniques, radioactive counters- liquid scintillation and Geiger Muller counter.
- Fluorimeter

UNIT 2

- Principles and techniques of separation methods – chromatography (TLC), electrophoresis (paper, moving boundary and gel).
- Atomic Absorption-Estimation of any trace element.
- Measurement of enzyme activity and its principles, any one enzyme (amylase) to be estimated.

UNIT 3

- Food composition and factors affecting food composition.
- Sampling techniques, Preparation of sample.
- General physical methods of analysis of foods.
 - a) Specific gravity -Lactrometric determination
 - b) Refractrometry
 - c) Polarimatory& Polarography
 - d) Food Rheology
 - e) Viscosity
 - f) Surface tension
 - g) Freezing point

UNIT 4

General Chemical methods of analysis in Food

- a) Proximate principles
- b) Moisture in spices
- c) Ash and types
- d) Total protein ,non-protein nitrogen
- e) Total fat and different types of lipids.
- f) Total Carbohydrates, starch, mono and disaccharides.
- g) Crude fibre and dietary fibre.
- h) Macro nutrients (brief)
 - Sodium, K, Mg, I, Fe
 - Vitamins – A, C, D, E
 - Trace Elements – Cu, Zn, As

UNIT 5

- Entrepreneurship, Plant location, Investment, Financing in Project.
- Food laws, Equipment and Space.
- Costing of product. Advertising and marketing.

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.
1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory)

(3×5=15)
 2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory)

(7×5=35)
 3. Five (5) long answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted).

(15×2=30)

REFERENCES:

1. Nielsen, S.S. Introduction to the chemical analysis of foods. Jones and Bartlett Publishers, Boston, London. 2004.
2. Mahindru, S.N. Food additives. Characteristics, detection and estimation. Tata Mc Graw-Hill Publishing Company Limited, New Delhi. 2000.
3. Pearson, D. The Chemical Analysis of Foods. Churchill Livingstone, New York, 2002
1. Chemical Analysis of Food – Pearson's Egan, Kiv and Sawyer
2. The Chemical Analysis of Foods and Food Products – Jacob
3. Handbook of Analysis and quality control for fruit and vegetable products - Ranganna
4. Laboratory Techniques in Food Analysis – Pearson
5. Food Analysis – Theory and Practice – Pomeranz
6. A First Course in Food Analysis – A.Y. Sathe
7. ISI Handbook of Food Analysis
8. Food Analysis and Quality Control- Kalia, M. 2002, Kalyani publishers, New Delhi
9. AOAC International. 2003. Official methods of analysis of AOAC International. 17th Ed. Gaithersburg, MD, USA, Association of Analytical Communities
10. Kirk, RS and Sawyer, R. 1991. Pearson's Chemical Analysis of Foods. 9th Ed. Harlow, UK, Longman Scientific and Technical.
11. Leo ML. 2004. Handbook of Food Analysis. 2nd Edition. Vol 1, 2 and 3, Marcel Dekker.
12. Linden G. 1996. Analytical Techniques for Foods and Agricultural Products. VCH.
13. Nielsen, S. (Eds) 1994. Introduction to Chemical Analysis of Foods. Jones & Bartlett
14. Pomrenz Y & Meloan CE. 1996. Food Analysis - Theory and Practice. 3rd Ed. CBS.
15. Ranganna, S. 2001. Handbook of Analysis and Quality Control for Fruit and Vegetable Products, 2nd Ed, Tata-McGraw-Hill Publ

PRACTICALS

Course Code:UFSEP 502

Max marks: 50

Duration of Examination: 3hrs

External Assessment: 25

Recommended credits: 2 (3hrs. per week)

Internal Assessment: 25

2 Credits

1. Project work to be submitted at the end of the course
2. Experimentation using any one method and demonstration of the rest.
 - a) Proteins
 - Kjeldhal
 - Calorimetric
 - b) FAT
 - Physical
 - Extraction
 - c) Moisture
 - d) Fibre
 - Crude fibre
 - e) pigments
 - Calorimetric
 - f) Vitamins
 - Calorimetric

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

Semester-Vth
DISCIPLINE SPECIFIC ELECTIVE COURSES
TECHNOLOGY OF FERMENTATION, MALTING AND BREWING

Course Code: UFSET 503

Duration of Examination: 2.5 hrs

Max marks = 100

External assessment =80

Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020

Recommended credits : 4 (4 hrs. per week)

THEORY

Objectives:

1. To familiarize the students with the concepts of fermentation and fermentation technology.
2. To understand the benefits of fermentation in food and its application in the field of food science.
3. To understand fermentation process in milk, milk products & in various Indian fermented food products.
4. To understand the process of alcoholic and non-alcoholic fermentation.
5. To understand the process of Wine and Beer making.
6. To understand the concept of production of Single Cell Protein, Vitamins.

Unit-1 Fermentation and Fermenter

- Introduction: Definition , Types of fermentation,
- Fermenter-Types& design.
- Beneficial aspects of Fermentation: Benefits of fermentation, Micro-organisms responsible for fermentation

Unit 2

- Significance of Fermented Foods. Factors affecting growth and metabolic activities of microbes in food fermentation.
- Sterilization –Introduction and principle and procedure
- Non-conventional and conventional substrates used in fermentation industry
- Media production –Introduction and characteristics

Unit-3

- Fermented milk products (Cheese, Curd, yoghurt, buttermilk)
- Fermented Cereals: Bathura, idli, dhokla, bread etc.
- Fermented Vegetable Pickles: Sauerkraut, cucumber
- Non alcoholic beverages: (Coffee and Tea)
- Processing and nutritional values of these products

Unit-4

- Introduction to malting and brewing, aging, lagering, mashing (Basic concepts)
- Alcoholic and Non-alcoholic beverages (Differences), Beer: Raw material, Malting, steeping, germination, kilning, Malt types/adjuncts, Hops
- Wort production: malt grinding, mashing, Beer Maturation and Filtration

Unit-5

- Wine - Source, Nutritional value and processing.
- Single cell proteins (Introduction and usage)
- Enzymes used in food industry, Vitamins (Classification and types),
- Prebiotics and probiotics : (Definition and health benefits)

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.
1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory) (3×5=15)
 2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)

3. Five (5) long answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted).

(15×2=30)

References:

1. Fermented Food Beverages in Nutrition, Gastineau CF, Darby WJ and Turner TB, 1979, Academic Press.
2. Advances in Biotechnology, Moo-Young M, 1981, Pergamon Press.
3. Fermentation Biotechnology: Principles, Processes and Products, Ward OP, 1989, Prentice-Hall.
4. Principles of Fermentation Technology, Stanbury PF, Whitaker A and Hall SJ, 1997, Elsevier.
5. Biotechnology – Food Fermentation - Dr. S. K. Singh
6. Industrial Biotechnology - M. S. Rangannath & Shriram Shridhin
7. Food Microbiology - William Frazier, Dannise Westhoff
8. Food Biotechnology - S.N. Tripathy
9. Fermentation & Biotechnology : - V.K.Joshi
10. Food fermentation : - Adams
11. Biotechnology: Fermentation: Microbiology, Biochemistry & Technology, Volume I & II – Joshi, V.K. and Pandey Ashok
12. Fermentation and Food Safety - Martin R. Adams and M.J.R. Nout

PRACTICALS

Course Code: UFSEP 503

Max Marks: 50

Duration of Examination: 3hrs

External Assessment: 25

Recommended credits: 2 (3hrs. per week)

Internal Assessment: 25

- 1) Preparation of any fermented products.
- 2) Preparation of any fruit wine.
- 3) To carry out malting-Steeping and Germination.
- 4) To study various types of liquors.
- 5) Media preparation and sterilization.

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

Semester-Vth
SKILL ENHANCEMENT COURSE
FOOD PRODUCT DEVELOPMENT AND ENTREPRENEURSHIP (Theory)

Course code: UFSTS 504

Duration of Examination: 2.5 hrs

Max marks = 100

External assessment =80

Internal assessment = 20

Syllabus for Examination to be held in the year 2018, 2019 & 2020

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. To introduce students to the basic terms and concept of new food product development.
2. To help students learn about the techniques of developing and standardizing new food products.
3. To develop in students awareness and skill related to entrepreneurship.
4. To give students concept of preparing project reports.

Unit 1

- Concept of product development - product success and failure, factors for success, market survey process of product development, managing for product's success.
- Innovation strategy -possibilities for innovation, building up strategy, product development programme.
- The product development process - product strategy, cost effectiveness, uniqueness, product design and process development, product commercialization, product launch and evaluation.
- New Food Products: Definition, Classification, Factors shaping new product development

Unit 2

- Business Idea Generation, sources of idea and evaluation
- The knowledge base for product development technology - knowledge and the food system, knowledge management, knowledge for conversion of raw material properties, equipment needed and Design; establishing process parameters for optimum quality
- SWOT Analysis, Brief introduction of phases in food product development

Unit 3

- Role of consumers in product development - consumer behaviour, food preferences, avoiding acceptance, integration of consumer needs in product development and sensory needs. ; statistical analysis; application in product development and comparison of market samples
- Recipe development and standardization, food safety and food spoilage.
- Stabilization of various new ingredients to suit product functions, packaging, labeling

Unit 4

- Managing the product development process principles of product development management, people in product development management, designing the product development process, key decision points, establishing outcomes, budgets and constraints, managing and organizing product development process.
- Sensory Evaluation, shelf life testing, different preservation methods- low and high temperature, hurdle technology
- Packaging methods

Unit 5

- Improving success potential of new products, market exploration and acquisition, Legal aspects of new product launch.
- Entrepreneurship: Plant location, investment, financing the project
- Case studies of successful entrepreneurs
- Preparation of business plan, Preparation of project report

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.

1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory)
(3×5=15)
2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory)
(7×5=35)
3. Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted).
(15×2=30)

REFERENCES :

1. Fuller 2004.New Food Product Development-from concept to market place.CRC.
2. Earle and Earle 2001. Creating New Foods. Chadwick House Group.
- 3.Vasant Desai (2012) Fundamentals of Entrepreneurship and Small Business Management, Himalya Publishing House Pvt. Ltd., Mumbai
4. Vasant Desai (2011) The Dynamics of Entrepreneurial Development and Management, Himalya Publishing House Pvt. Ltd., Mumbai
5. Clarke & Wright W.1999. Managing New Product and Process Development. Woodhead Publications.
6. Anil Kumar, S., Poornima, S.C., Abraham, M.K.& Jayashree, K.(2004.) Entrepreneurship Development. New Age International Publishers.
7. Moskowitz, Howard and Saguy, R.I. Sam,(2009) An Integrated Approach to New Food Product, CRC Press,

University of Jammu
 SYLLABI AND COURSES OF STUDY FOR **FOOD SCIENCE AND QUALITY CONTROL (FSQC)** FOR THE
VITH SEMESTER EXAMINATIONS TO BE HELD IN THE YEARS 2019, 2020 AND 2021

Course Code	Subject	Maximum Marks		Credits	Duration Of Examination
		University Examination	Internal Assessment		

***A CANDIDATE HAS TO CHOOSE ANY ONE DISCIPLINE SPECIFIC COURSE FROM THE THREE**

UFSET 601*	Research Methodology	80	20	4	2.5 hrs
UFSEP 601	(Practical)	25	25	2	3 hrs
UFSET 602*	Packaging Technology	80	20	4	2.5 hrs
UFSEP 602	(Practical)	25	25	2	3 hrs
UFSET 603*	Operations Research & Food Plant Layout	80	20	4	2.5 hrs
UFSEP 603	(Practical)	25	25	2	3 hrs
UFSTS 604	Technology of Processing of Milk and Milk Products (Theory)	80	20	4	2.5 hrs

Semester-VI
DISCIPLINE SPECIFIC ELECTIVE COURSES
RESEARCH METHODOLOGY

Course Code: UFSET 601

Max marks = 100

Duration of Examination: 2.5 hrs

External assessment =80

Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. To introduce students to the basic terms and concept of research.
2. To familiarize students regarding various problems related to research.
3. To develop skills regarding data handling and data analysis.
4. To familiarize the students of writing research reports.

Unit 1 Introduction

- Research: Definition and Objectives, Characteristics of Research
- Research types : Historical, experimental, case study, social, survey).
- Scientific methods and research

Unit 2 Research Process :

- Research problem: Definition, Identification, formulation, Selection of Research Problem .Limitations of Research Problem.
- Research design: Definition, importance. Types (Exploratory, Descriptive, Diagnostic and Experimental)
- Variable , concept & measurement

Unit 3 Sampling & Tools

- Sampling – definition, purpose, principle and Types -in detail
- Tools of data collection – observation , questionnaire, interview schedule, case study.
- Levels of measurement.

Unit 4 Data Analysis

- Meaning and importance, Classification and Tabulation, Interpretation,
- Diagrammatic and Graphical Presentation.
- Illustrations: Meaning and Types
- Formatting tables: Title, Body, Stub, Column, Rows, Head, Box Head, Appendices, Drafting ,Titles, Sub Titles,

Unit 5 Report writing

- Format of report writing , Drafting and redrafting
- Parts of Dissertation/Research article, Abstract, Introduction, Review of literature, Material and Methods, Results and Discussion, Summary and Conclusion, Bibliography
- Various forms of publications

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

The external examinations in theory shall consist of the following.

Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory)

(3×5=15)

2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory)

(7×5=35)

3. Five (5) long answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted).

(15×2=30)

References:

- 1) Bandarkar, P.L and Wilkinson, T.S. (2000). Methodology and techniques of social research, Himalaya Publishing House, Mumbai
- 2) Integrating Research: A guide for literature reviews: Cooper
- 3) Writing strategies: Richardson
- 4) Disseminating research: Changing practices, Dunn, FV and others
- 5) Strass, A. and Corbin, J. (1990).Basis of Qualitative Research: Grounded theory Procedure and Techniques, Saga Publications, California.
- 6) Ahuja,R.(2009 reprint) Research methods ,Rawat Publications.
- 7) Kothari,D.S.,(2013). Research Methodology: Methods& Technique. 2nd edition. New Age Publishers, New Delhi.
- 8) Minimum, E.W., King, B.M & Bear, G.(1995). Statistical Reasoning in Psychology and Education. John wiley & sons. New York.

Practicals

Course Code: UFSEP 601

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

- 1) Excise in research process
- 2) Exercise in sampling & in designing tools & analysis
- 3) Data collection process
- 4) Format of writing Bibliographies/ references
- 5) Thesis writing

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

Semester-VI
DISCIPLINE SPECIFIC ELECTIVE COURSES
PACKAGING TECHNOLOGY

Course Code: UFSET 602

Max marks = 100

Duration of Examination: 2.5 hrs

External assessment =80

Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits: 4(4 hrs. per week)

THEORY

Objectives:

1. To introduce students to the concept of Food Packaging Technology.
2. To know various packaging materials to be used in food packaging.
3. To understand various quality parameters of various food packaging materials.
4. To know various properties of different food products and their respective packaging.
5. To know latest trends in food packaging.
6. To know various food packaging laws and its implications.

Unit-1

- Basic Concepts: Concept of packaging, Functions of a Food Package, Package development factors and Food package development.
- Definitions, objectives and types of packaging materials; functions of package.
- Cushioning materials,
- Packaging requirements, Different packaging material and systems for fruits, vegetables, dairy, meat, fish etc.

Unit-2 Glass and Metal containers:

- Glass: Composition, Properties, Bottle making and Closures for glass containers. properties, advantages and disadvantages.
- Metal: Bulk containers, Tin-plate containers, Tin free steel containers, Aluminium containers, Latest development in metal cans and protective lacquers

Unit-3

- Cellulosic and Polymeric packaging materials and forms: Food grade polymeric packaging materials, Rigid plastic packages.
- Films: Oriented, Co-extruded, Laminates and Metalized; Cellophane, Olefins, Polyamides, Polyesters, PVC, PVDC, PVA, Isomers, Copolymers, Polycarbonates, Phenoxy, Acrylic and Polyurethane. Their mechanical sealing and barrier properties.

Unit-4

- Food product characteristics and package requirement
- Selection of materials, Forms
- Machinery and methods for fresh produce (Fruits, Vegetables, Egg, Meat and Fish), Edible oils and Fats, Spice and spice products, Processed products (Fruit & Vegetable, Cereal & Pulse, Dairy, Confectionary & Snacks, Meat & Marine products).

Unit-5

- Package printing, Packaging Laws and Regulations.
- Evaluation of food packaging materials and package performance. Aseptic Packaging.
- Newer trends in packaging and printing

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

◆ The external examinations in theory shall consist of the following.

- 1 Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer. (All Compulsory) (3×5=15)

2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
3. Five (5) long answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

REFERENCES:

- 1.Han, Jung H. “Innovations in Food Packaging”. Elsevier, 2005.
2. Ahvenainen, Raija. “Novel Food Packaging Techniques”. Wood Head Publishing, 2003
3. M. Mahadeviah and R.V. Gowramma Food Packaging Materials
4. Paine E.A, "Fundamentals of packaging
5. S. Saclarow and R.C. Griffin Principles of Food Packaging
- 6.Robertson, G.L. “Food Packaging : Principles and Practice”. 2nd Edition. Taylor & Francis, 2006.
7. Sacharow, S., Griffin, R.C. Food Packaging. AVI Publishing Company, West Port, Connecticut. 2000.
8. Davis, E.G. Evaluation of tin & plastic containers for foods. CBS Publishers, New Delhi. 2004.
9. Cruess, W.V. Commercial Fruit & Vegetable Products. Allied Scientific Publishers, Delhi. 2003.
10. Potter, N. N., Hotchkiss, J. H. Food Science . CBS Publishers, New Delhi. 2000. 5. Raj, G .D. Encyclopaedia of Food Science, Vol 2. Anmol Publications PVT Ltd, New Delhi.

Practicals

Course Code: UFSEP 602

Duration of Examination: 3hrs

Recommended Credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

1. Familiarization of different types of food packaging materials.
2. To measure GSM of any Paper/Board material
3. Identification of plastic films
4. Pre-packaging of vegetables.
5. To measure thickness of packaging materials by using Screw Gauge & Vernier Calipers

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

Semester-VI
DISCIPLINE SPECIFIC ELECTIVE COURSES
OPERATION RESEARCH AND FOOD PLANT LAYOUT

Course Code: UFSET 603
Duration of Examination: 2.5 hrs

Max marks = 100
External assessment = 80
Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021

Recommended credits : 4(4 hrs. per week)

THEORY

Objectives:

1. To introduce students the concept of Food Plant Layout.
2. To understand various concepts related to setting up of a new food production facility.
3. To develop skills in preparing projects related to setting up of food Units..
4. To develop in students awareness and skill related to entrepreneurship

Unit 1

- Introduction : Plant design concepts - situations giving rise to plant design problems - differences in design of food processing and non-food processing plants
- General design considerations, Food Processing Unit Operations,
- Prevention of Contamination, Sanitation, Deterioration, Seasonal Production

Unit 2

- Flow Chart for Plant Design, Identification Stage, Looking for a need, Finding a product,
- Preliminary Screening of ideas, Comparative rating of product ideas: Present Market, Market Growth potential, Costs, Risks Pre Selection / Pre feasibility stage
- Analysis Stage: Market Analysis, Situational analysis related to market, Technical analysis, Financial Analysis, Sensitivity and risk analysis, Feasibility cost estimates.
- Break Even Analysis: Introduction, Break-Even Chart, Fixed Costs, Variable costs, Breakeven point calculation.

Unit 3

- Plant location :Introduction, Location Decision Process, Factors involved in the plant location decision, Territory selection and Site/ community selection
- Locational Break-Even analysis
- Food Plant Utilities: Process Water, Steam, Electricity, Plant Effluents
- Plant Size and Factors
- The enterprise and its Environment, The total revenue function, the total cost function
- Break-even and shutdown points, Production, economics of mass production, Production management decision

Unit 4

- Plant layout : Importance, Flow Patterns
- Basic Types of plant layouts, Product or line layout, Process or functional layout, Cellular or group layout, and Fixed position layout, Plant Layout factors, Layout design Procedure
- General guide lines for plant layout, Typical clearances, areas and allowances, Plant layout, Layout of equipment, Space determination
- Engineering Economy : Introduction, Terms: Time value of money, inflation, Interest, Interest rate, compound interest, rate of return, payment, receipt, cash flow, present value, Equivalence, sunk costs, opportunity costs, Asset, Life of an asset, depreciation, book value of an asset, salvage value, retirement, replacement, defender and challenger.

Unit 5

- Materials of construction of Food Equipment : Characteristics of suitable construction material : Stainless steel, Aluminum, Nickel and Molybdenum, Plastic Materials, Illumination and ventilation, Cleaning & sanitization
- Maintenance of Food Plant Building : Safety Color Code, Roof Inspection, Care of Concrete floors

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.
- 1. Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory) (3×5=15)
- 2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All Compulsory) (7×5=35)
- 3. Five (5) along answer to the questions representing whole of the syllabi(with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15marks each answer (Any two to be attempted). (15×2=30)

REFERENCES:

1. M Moor, Mac Millan, Plant Layout & Design. Lames, New York.
2. H.S. Hall & Y.S. Rosen, Milk Plant Layout. FAO Publication, Rome.
3. F.W. Farrall, Dairy & Food Engineering. John Willy & Sons, New York.
4. Food Plant Design by Antonio Lopez. Gomez
5. Food plant engineering systems by Theunis C. Robberts, CRC Press, Washington
6. Food plant economics by Zacharias B. Maroulis and George D. Saravacos published by Taylor and Francis Group, LLC.
7. Fundamentals of Production Systems Engineering, G.S.Sekhon and A.S.Sachdev, Published by Dhanpat Rai and Company Private Limited, Delhi (Chapter NO. 19)
8. Operations Research by Manohar Mahajan, Published by Dhanpat Rai and Company Private Limited, Delhi
9. Food Process Design by Zacharias B. Maroulis published by Marcel Dekker, Inc ,Cimarron Road, Monticello, New York 12701, U S

Practicals

Course Code:UFSEP 603

Duration of Examination: 3hrs

Recommended credits: 2 (3hrs. per week)

Max marks: 50

External Assessment: 25

Internal Assessment: 25

1. Preparation of project report
2. Preparation of feasibility report
3. Layout of any Food Plant
4. Design and layout of low shelf life product plant
5. Design and layout of Bakery and related product plan

Note for practical examination (total marks: 50)

Practical	Syllabus to be covered in examination	% weightage (Marks)
Daily evaluation of practical records/ viva voce/ attendance etc		25 (including 20% for attendance, 40% for viva voce + test and 40% for day to day performance)
Final practical performance + viva voce (external examination)	100% syllabus	25 (40% paper + 10% viva voce)
Total		50

Semester VIth

SKILL ENHANCEMENT COURSE
TECHNOLOGY OF PROCESSING OF MILK AND MILK PRODUCTS (Theory)

Course code: *UFSTS 604*

Duration of Examination: 2.5 hrs

Max marks = 100

External assessment = 80

Internal assessment = 20

Syllabus for Examination to be held in the year 2019, 2020 & 2021*Recommended credits : 4(4 hrs. per week)***THEORY***Objectives:*

1. To understand the basic concept of Milk processing and preservation.
2. To study the importance of nutritional quality of milk and milk products.
3. To study various products being made from milk.
4. To introduce the basic concept of handling waste and byproducts of milk and milk products.

Unit-1

- Development of milk processing industry in India ,present status & scope.
- Physico Chemical properties and nutritive value of milk. Types of milk.
- Microbiology of milk, source of contamination
- Fortification and enrichment of milk and milk products

Unit-2

- Liquid milk processing- Filtration/Clarification, Standardization, Pasteurization (Objectives, LTLT, UHT, equipments, advantages)
- Homogenization (Objectives, process, advantages)
- Packaging, Distribution and storage of liquid milk.
- Effect of processing on Milk

Unit-3

- Milk- Definition, composition, method of manufacture, use
- Butter- Definition, composition, method of manufacture, use
- Butter Oil- Definition, composition, method of manufacture, use
- Ice cream- Definition, composition, method of manufacture, use
- Cheese- Definition, composition, method of manufacture, use

Unit-4

- Condensed milk- Definition, composition, method of manufacture, use
- Dried Milk(skimmed& full fat)- Definition, composition, method of manufacture, use
- Yoghurt& Margarine- Definition, composition, method of manufacture, use
- Indian Dairy Products- Kheer, Khoa, Rabri, Kulfi, Dahi, Shrikdhand, Paneer, Channa,Ghee, Kaladi,

Unit-5

- Introduction, Classification & Composition of milk byproducts .
- Plant layout and design of milk and milk products.
- Miscellaneous aspects of plant layout and design like provision for waste disposal, safety arrangements etc.
- By products of dairy industry and their utilization

NOTE FOR PAPER SETTING: Theory Examination

The Question paper will consist of two sections.

- ◆ The external examinations in theory shall consist of the following.
- 1 Five (5) short answer to the questions representing all units/syllabi i.e. at least one from each unit (without detailed explanation having 70 to 80 words, to be completed in approximately 6 minutes) and having 3 marks for each answer.(All Compulsory)

(3×5=15)
 2. Five(5) medium answer to the questions representing all units/syllabi i.e. at least one from each unit (with explanation having 250-300 words, to be completed in approximately 12 minutes) and having 7 marks for each answer (All

Compulsory)

(7×5=35)

3. Five (5) along answer to the questions representing whole of the syllabi (with detailed analysis/explanation/critical evaluation/solution to the stated problems, within 500-300 words, to be completed in approximately 30 minutes) and having 15 marks each answer (Any two to be attempted).

(15×2=30)

REFERENCES

- 1) Outlines of Dairy Technology by Sukumar De
- 2) Food Science by B. Srilakshmi
- 3) Warner J. M, 1976 Principles of Dairy Processing
- 4) Knechtges LI. Food Safety-Theory and Practice, USA: Jones and Barlette Learning 2012