Jo,

Sri. Sagar Kumar
OSI ( Universities)
Raj Bhavan, Patna

Sub: Implementation of Choice Based Credit System

Sir,

With reference to your letter No. BSU (Regulation) - 20/2018-1510/GIS(1), dt. 05.06.2018, a meeting of the panel of experts in Home Science was held today (13.06.2018) at 10.30 am to finalise the CBGS curriculum in Home Science.

We went through the syllabus provided to us. However, we found that the syllabus was in order. However, two additional sheets added as cover pages.

He recommended that it may be placed before the authorized body.

Yours sincerely,

........................................
Assoc. Prof. (offduty)
Dept. of Home Science
Patna University

9334121405

13.06.2018

Pratima Singh
Coordinating, NOU

9304261226
9123187723
Core Course (CC):
A course which should compulsorily be studied by a candidate as a core requirement on the basis of subject of MA studies and is termed as a Core course.

Elective Course (EC):
Generally a course which can be chosen from a pool of courses (Basket) and which may be very specific or specialized or advanced or supportive to the subject/discipline of study or which provides an extended scope or which enables an exposure to some other subject/discipline/domain or nurtures the candidate’s proficiency/skill is called an Elective Course.

Discipline Specific Elective Course (DSE):
Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective. The University/Institute may also offer discipline related Elective courses of interdisciplinary nature (to be offered by main discipline/subject of study).

Generic Elective (GE) Course:
An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Generic Elective.
P.S.: A core course offered in a discipline/subject may be treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Generic Elective.

Ability Enhancement Courses (AEC):
The Ability Enhancement Courses (AEC) / Skill Enhancement Courses (SEC). “AEC” courses are the courses based upon the content that leads to life skill enhancement.

Ability Enhancement Compulsory Courses (AECC):
(Qualifying and Non-CGPA course):
University will run a number of Ability Enhancement Compulsory Courses (AECC) which is qualifying in nature and student from all faculties have to qualify in all courses.

Dissertation/Project/Internship/Industrial Training:
An elective course designed to acquire special/advanced knowledge, such as supplement study/support study to a project work, and a candidate studies such a course on his own with an advisory support by a teacher/faculty member is called dissertation/project.
<table>
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<tr>
<th>SEMESTER</th>
<th>Course/ Paper Code</th>
<th>Nature of Course/ Paper</th>
<th>Marks</th>
<th>Marks of CIA</th>
<th>Marks of ESE</th>
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<td>30</td>
<td>70</td>
<td>45% in CIA</td>
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</table>
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To,
The Registrar
Patna University,
Patna

Subject: Revised Curriculum for Postgraduate course in Home Science under Choice Based Credit System - Submission

Respected Sir,

We are hereby submitting the revised Curriculum for Postgraduate course in Home Science under Choice Based Credit System prepared by us.

Thanking you,

Yours sincerely,

(Anju Srivastava)

Enclosed:

1). Proceeding of the meeting
2). Two copies of revised curriculum for Postgraduate Course in Home science under Choice based Credit System
Department of Home Science
Patna University, Patna

A meeting regarding revision of curriculum under Choice Based Credit System for Post Graduate course in Home Science was held today i.e. 07.05.2018 (Monday) at 10.30 a.m. in the Post Graduate Department of Home Science, Patna University under the chairmanship of Dr. Anju Srivastava, Head, Post Graduate Department of Home Science, Patna University.

The following members were present in the meeting:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Members of the Syllabus Committee - Name &amp; Address</th>
<th>Signature</th>
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</thead>
<tbody>
<tr>
<td>01</td>
<td>Dr. Anju Srivastava Head, PG Department of Home Science Patna University, Patna</td>
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<tr>
<td>02</td>
<td>Prof. (Dr.) Renu Kumari Head, PG Department of Home Science B.R.A. Bihar University, Muzaffarpur</td>
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<td>03</td>
<td>Dr. Manju Kumari Sinha Head, PG Department of Home Science J.P. University, Chapra</td>
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<td>04</td>
<td>Dr. Nirmala Jha Head, PG Department of Home Science L.N.M.U. Darbhanga</td>
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<td>05</td>
<td>Dr. Anju Singh Head, PG Department of Home Science T.M.B.U., Bhagalpur</td>
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<td>06</td>
<td>Dr. Vijay Lakshmi Head, PG Department of Home Science V.K.S.U, Ara</td>
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The members of the Syllabus Committee, after thorough discussion, approved the attached revised curriculum for Post Graduate course in Home Science under Choice Based Credit System.
### Proposed Syllabus for M.A. in Home Science

<table>
<thead>
<tr>
<th>Semester</th>
<th>Core Course</th>
<th>Elective Course</th>
<th>Discipline Specific Elective Course</th>
<th>Generic Elective Course</th>
<th>Ability Enhancement Course</th>
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<td>CC - 1</td>
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<td>AECC - 1 Environmental Sustainability &amp; Swachh Bharat Abhiyan Activities</td>
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<td>Child Development: Prenatal to Preadolescence</td>
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Core Course 1: Advanced Nutrition

05 Credits

Time: 3 Hours

Full Marks: 70

The pattern of question papers will be as under

Group A - Compulsory – ten questions (two questions from each unit) of two marks each.

\[ 2 \times 10 = 20 \text{ marks} \]

Group B - Five questions (one from each unit) – each question of 5 marks, four to be answered.

\[ 5 \times 4 = 20 \text{ marks} \]

Group C - Five questions (one from each unit) – each question of 10 marks, three to be answered.

\[ 10 \times 3 = 20 \text{ marks} \]

Objectives:

This course will enable the students to:

- Understand the impact of nutrients on human body
- Get an insight into various metabolic pathways
- Know the role of hormones in growth, maintenance and regulation of body processes

Unit I

Energy Metabolism

- Determination of energy value of food - Bomb calorimeter
- Basal metabolic rate - Measurement and factors affecting basal metabolic rate
- Measurement of energy requirement of an individual with reference to man and women

Unit II

Proteins

- Classification of protein & amino acids
- Structure, properties and functions of protein
- Metabolism of proteins, protein synthesis
- Assessment of protein quality
- Plasma proteins
- Structure and Functions of DNA and RNA

Unit III

Lipids

- Classification of Lipids
- Structure, properties and functions of Lipids
- Metabolism and nutritional significance of lipids
- Biosynthesis of cholesterol and its functions

Unit IV

Carbohydrates

- Classification of carbohydrates
- Structure, properties and functions of carbohydrates
- Metabolism of carbohydrates
- Altered metabolism of carbohydrates in diabetics
- Glycemic index
- Role of hormones in carbohydrate metabolism (insulin, thyroid and adrenal cortex)
Unit V
Micronutrients
Vitamins and Minerals and their role in metabolism (vitamin A, Calcium, Iron and Iodine)

Reference:
3. A.C. Deb: Fundamentals of Biochemistry
4. H.S. Srivastava: Elements of Biochemistry
5. A.K. Bery: Few Rasayan ki Pathya Pshtika
Core Course 2: Child Development: Prenatal to Preadolescence

Full Marks: 70

The pattern of question papers will be as under:

Group A- Compulsory – ten questions (two questions from each unit) of two marks each.

Group B- Five questions (one from each unit) – each question of 5 marks, four to be answered.

Group C- Five questions (one from each unit) – each question of 10 marks, three to be answered.

Objectives:
This course will enable the students to:
- To have an overview of development from prenatal stage to preadolescence stage
- To develop an awareness of important aspects of all development stages during this phase

Unit I
Introduction to Development
- Stages and principles of growth and development
- Developmental tasks
- Individual differences
- Comparative role of heredity and environment
- Aspects of development

Unit II
Prenatal Development
- Conception, stages of prenatal development
- Factors affecting prenatal development
- Common disorders during pregnancy
- Types and stages of birth process

Unit III
Infancy (0-2 years)
- Neonate-Their characteristics and behavior patterns
- Evaluation and examination of health of neonate
- Formation of some healthy and good habits among Infants

Unit IV
Early Childhood (2-6 years)
- Physical and motor development, common motor skills
- Social and Emotional development (characteristics and common Emotions)
- Cognitive development

Unit V
Late childhood (6-12 years)
- Physical and motor development
- Personality development- characteristics
- Imagination and cognitive development
- Social relationship- peer, siblings and parents
References:
Core Course 3:  
Concept of Home Management  
05 Credits

Full Marks: 70

Time: 3 Hours

The pattern of question papers will be as under:

Group A - Compulsory – ten questions (two questions from each unit) of two marks each.

Group B - Five questions (one from each unit) – each question of 5 marks, four to be answered.

Group C - Five questions (one from each unit) – each question of 10 marks, three to be answered.

Objectives:
This course will enable the students:

- To understand the significance of management in the micro and macro organization
- To know the conceptual, human and scientific aspects of management functions
- To develop the ability to evaluate the managerial efficiency and effectiveness in the family and other organizations

Unit I
Management as a system
- Definition
- Elements
- Types
- Application in family resource management

Unit II
Management process
- Planning – objectives, principles, strategies, policies
- Organizing – purpose, process, delegation, authority, responsibility and accountability, staffing, purpose, recruitment, appraisal directing, leadership, motivation and communication
- Controlling and its tools
- Appraisal
- Evaluation

Unit III
Ergonomics
- Definition
- Scope and nature of ergonomics in domestic and other occupations

Unit IV
Time and energy management
Time and energy management in study of ergonomics

Unit V
Work simplification
Work simplification process and time motion economy
Reference:
1. Introduction to Home Management by Bettye B. Swanson, Macmillan Publishing Company
2. Home – Today & Tomorrow by Ruth F. Sherwood
5. Grih Prabanth by Manju Patni
6. Grih Prabandh and Grih Vyavastha by Brinda Singh
Core Course 4: Research Methodology and Statistics  
05 Credits

Full Marks: 70

The pattern of question papers will be as under:

Group A - Compulsory - ten questions (two questions from each unit) of two marks each.

\[ 2 \times 10 = 20 \text{ marks} \]

Group B - Five questions (one from each unit) - each question of 5 marks, four to be answered.

\[ 5 \times 4 = 20 \text{ marks} \]

Group C - Five questions (one from each unit) - each question of 10 marks, three to be answered.

\[ 10 \times 3 = 20 \text{ marks} \]

Objectives:

This course will enable the students to:
- Develop a scientific approach and know the processes of research
- Develop the competence for selecting method and tools appropriate for research topics
- Understand concepts of statistical measures of central tendency, dispersion, variability, and probability

Unit I

Foundation of Scientific Research
- Research – meaning and definition
- Need of research in Home Science
- Necessary consideration for selecting a research problem
- Sources for locating a research problem

Unit II

Stages/steps involved in research process
- Research problem
- Literature Review
- Hypothesis
- Variables
- Methodology: sample, sampling technique, tools and tests, statistical devices
- Pilot study
- Test administration and data collection
- Scientific generalization
- Preparing the research report

Unit III

Sample and Sampling techniques
- Sample - Meaning, characteristics of a good/scientific sample
- Sampling techniques:
  - Probability sampling - Meaning and types
  - Non-probability sampling - Meaning and types

Unit IV

Research Tools
- Observation
- Questionnaire
- Interview
- Case study
Unit V
Concept of data
a. Types of data – Primary data and secondary data
   Qualitative and quantitative data
b. Analysis of data – Qualitative and quantitative data analysis

Reference:

Statistics

Unit I
Meaning and characteristics of statistics, definition, importance, classification, tabulation, frequency curve, histogram and pie chart

Unit II
Measure of central tendency
- Mean – definition, merits, demerits and related programs
- Median – definition, merits, demerits and related program
- Mode – definition, merits, demerits and related program

Unit III
- Measure of dispersion- meaning and types of dispersion, range, quartile deviation, standard deviation related problems, characteristics of dispersion

Unit IV
Correlation – definition, methods of correlation, product moment (Pearson) and rank difference

Unit V
Normal probability curve- definition and characteristics of normal probability curve, definition, types of skewness and kurtosis

Renu Kumari
07.05.18
Nirmal Singh
07.05.18
Deepak Kumar
07.05.18
Reference:

## Semester - II

<table>
<thead>
<tr>
<th>Course Opted</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC - 5 (Core Course)</td>
<td>Therapeutic Nutrition</td>
<td>5 (5+0)</td>
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<tr>
<td>(Discipline Specific Elective Course for other departments)</td>
<td></td>
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<tr>
<td>CC - 6 (Core Course)</td>
<td>Maternal and Infant Nutrition</td>
<td>5 (5+0)</td>
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<tr>
<td>CC - 7 (Core Course)</td>
<td>Communication Technology</td>
<td>5 (5+0)</td>
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<tr>
<td>CC - 8 (Core Course)</td>
<td>Women’s Studies</td>
<td>5 (5+0)</td>
</tr>
<tr>
<td>CC - 9 (Core Course)</td>
<td>Management of Textile Crafts and Apparel Industry</td>
<td>5 (5+0)</td>
</tr>
<tr>
<td>AEC - I (Ability Enhancement Course)</td>
<td>Computers &amp; IT Skill</td>
<td>5 (5+0)</td>
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</tbody>
</table>

**Total** 30
Semester - II

Core Course: 5

Therapeutic Nutrition

Full Marks: 70

Time: 3 Hours

The pattern of question papers will be as under:

Group A: Compulsory – ten questions (two questions from each unit) of two marks each.

Group B: Five questions (one from each unit) – each question of 5 marks, four to be answered.

Group C: Five questions (one from each unit) – each question of 10 marks, three to be answered.

Objectives:

This course will enable the students to:

- Understand the etiology, physiologic and metabolic anomalies of acute and chronic diseases and patient needs.
- Acquire basic knowledge about the effects of various diseases on nutritional status and dietary requirements.
- Be able to provide required nutritional care and treatment of the various diseases.

Unit I

- Importance of nutrition in health and disease
- Importance of meal planning, factors to be considered while planning meal
- Dietary management: in weight imbalance (obesity and underweight)

Unit II

Prevalence, etiology, biochemical and clinical manifestations and therapeutic measurement of the following:

- Typhoid fever
- Tuberculosis
- HIV infection and AIDS

Unit III

Prevalence, etiology, biochemical and clinical manifestations and therapeutic measurements of the following:

- Nutritional anemia
- Liver disorders: Jaundice, Hepatitis
- Diseases of the Cardio Vascular System
- Kidney diseases

Unit IV

Types, causes, symptoms and dietary management of metabolic disorders

- Diabetes Mellitus
- Gout
- Cancer

Unit V

Dietary counseling: Needs, objectives, steps and techniques
Practical

- Preparation of therapeutic diets - clear liquid diet, full fluid, soft and normal diet
- Plan and prepare diet for the diseases covered in theory and calculate the nutrients requirement
- Plan a day’s meal and calculate nutrients requirement for following diseases:
  - Weight Imbalance
  - Fever
  - Liver disease
  - Cardio-vascular Disease (500mg and 1000mg sodium restricted diet)
  - Renal disorders
  - Metabolic disorder

References:
1. M. Swaminathan, Advanced Textbook on Food and Nutrition
2. R. C. Mishra, Health and Nutrition Education
3. M. Swaminathan, Advanced Textbook on Food and Nutrition
4. P. Jnaki Rao, Nutrition and Food Science
5. Shubhangini M. Joshi, Nutrition and Dietetics
6. B. Shrilaxmi: Dietetics, 4th Edition
8. Carrol Lutz and Karen Przytulski: Nutrition and Diet Therapy
Core Course 6  
Maternal and Infant Nutrition  

Full Marks: 70  

Objectives:
This course will enable the students be
- Understand physiological changes during pregnancy and lactation.
- Get acquainted with growth and developmental changes from conception till birth.
- Understand the inter-relationship between nutrition and growth and development during a life cycle

Unit I
- Important of Maternal nutrition prior to and during pregnancy, Effect of under nutrition on mother-child health, including pregnancy
- Physiology and endocrinology of pregnancy and embryonic and fetal growth and development
- Nutritional requirement during pregnancy
- Complications of pregnancy and management and importance of antenatal care of at-risk mothers
- Congenital malformation, fetal alcohol syndrome and gestational diabetes mellitus

Unit II
- Lactation
- Development of mammary tissue and role of hormones
- Human milk composition and factors affecting breast feeding and fertility Management of lactation - breast feeding, Rooming in problems - sore nipples, engorged breast, inverted nipples etc.

Unit III
- Care and management of the preterm and LBW infants
- Implications for feeding and management

Unit IV
- Menopause
- Sign and symptoms
- Problems
- Management of dietary needs and health

Unit V
- Policies and programmes for promotion maternal and child nutrition and health
References:
1. M. Swaminathan : Food and Nutrition
2. Vkgk\,oa iks"k.k foKkua & MkWDVj c'ank flag
3. vks0ih0 VaMu & ekuo 'kjhj jpu\k,oa fdz;k foKkua
4. Vkgk\,oa iks"k.k foKkua & MkWDVj Vhuk [kuwtk
5. Health Mathers : Archana Sinha
Core Course: Communication Technology  
Full Marks: 70

The pattern of question papers will be as under:
Group A - Compulsory – ten questions (two questions from each unit) of two marks each.
2 x 10 = 20 marks
Group B - Five questions (one from each unit) – each question of 5 marks, four to be answered.
5 x 4 = 20 marks
Group C - Five questions (one from each unit) – each question of 10 marks, three to be answered.
10 x 3 = 20 marks

Objective:
- Develop understanding regarding various aspects of communication.
- Develop understanding regarding various audio-visual aids used for various groups: individual, group, mass.
- Develop ability to prepare, operate use of various audio-visual aids.

Unit I
Concept of Communication
- Definition, meaning and nature of communication
- Process, elements and models of communication
- Barriers in communication

Unit II
Forms of Communication
- Verbal and non-verbal
- Intra, inter, group, mass

Unit III
Mass Media
- Types, roles and characteristics
- Uses of – Electronic and traditional media

Unit IV
Adoption and Diffusion
- Concept of adoption
- Innovation and diffusion
- The Adoption process
- The Innovation – Decision process
- Adopter categories

Unit V
Introduction to Information Communication Technology (ICT)
- Satellite broadcasting, electronic media and computer Technology
- Role of ICT in Extension work and development
References:

Core Course 8: Women’s Studies

05 Credits

Full Marks: 70

The pattern of question papers will be as under

Group A: Compulsory – ten questions (two questions from each unit) of two marks each. 

Group B: Five questions (one from each unit) – each question of 5 marks, four to be answered.

Group C: Five questions (one from each unit) – each question of 10 marks, three to be answered.

Objectives:

- To develop awareness regarding status of women in India and sensitivity of women’s issues and concerns
- To enable women to become champions/well equipped in the changing society
- To empower women in their struggle against inequality and gender bias
- To become aware of the comprehensive and balanced understanding of social reality

Unit I

Women in India Civilization down the ages, Status of Women in ancient India-Vedic age, Pauranic Period, Mauryan Period, Gupta, Medieval, Feudal Period, Buddhist Period, British Period, Women in Post-independence period

Unit II

Relevance of Women’s Studies

Sources and growth of Women’s Studies

Unit III

Issues related to Crime against Women in India

- Child marriage
- Female feticide
- Dowry
- Sati
- Honor killing
- Rape and Sex abuse
- Trafficking
- Domestic Violence

Unit IV

Personal and Civil Laws related to Women

- Dowry prohibition Act
- Divorce and maintenance Law
- Marriage Registration Act
- Domestic Violence Act 2005
- Pre-Natal Diagnostic Act
- Laws against feticides
- Medical Termination of Pregnancy (MTP) Act, 1971
- Immoral Traffic Prevention Act
- Indecent Representation of Women (Prohibition) Act 1986
- Law against Sexual Harassment at workplace
Unit V
Women’s Welfare Programme

Reference:

4. Pant N. (1995), Status of Girl Child and Women in India, Delhi, APH
5. Girl Child in India – Devasia Leelamma
13. Sharma U. (1989), Brides are not for burning: Dowry Victims in India, Radiant, New Delhi
Core Course: 9 Management of Textile Crafts and Apparel Industry

Full Marks: 70

The pattern of question papers will be as under

Group A- Compulsory - ten questions (two questions from each unit) of two marks each.  

Group B- Five questions (one from each unit) - each question of 5 marks, four to be answered.  

Group C- Five questions (one from each unit) - each question of 10 marks, three to be answered.

Objectives:
This course will enable the students:
- To understand the textile crafts of India
- To enhance awareness regarding the history and production centers of the traditional textile crafts of India
- To understand the aspects of management regarding designing, merchandising and mass media
- To highlight certain aspects of apparel industry
- To signify the role of traditional textile crafts in economic empowerment

Unit I
Study of Textile Crafts of India: history, production centers, techniques, designs, colors and products
- Woven textile of India- Banaras Brocades, Jandanis and Baluchars of Bengal, Kani Shawls of Kashmir
- Embroidered textiles of India- Kantha of Bengal, Kasuti of Karnataka, Phulkari of Punjab, Chickankari of Uttar Pradesh, Kashida of Kashmir
- Painted and Printed textiles of India- Kalamkari of Andhra Pradesh, Dabu printing of Rajasthan, Ajarakh prints of Gujarat
- Dyed textiles of India- Bandhanis of Rajasthan and Gujrat, Ikats-Patola of Gujrat, Bandhas of Orissa, Pochampalli of Andhra Pradesh

Unit II
Elements used in creating a design
- Color- Color harmony, its sensitivity and composition in dress
  - Motif development-Geographical, simplified, naturalized, stylized, abstract and ornamental
- Components of fashion- Silhouette, details, color, fabric, texture

Unit III
Principles of Merchandising
- Types of merchandising
- Role of retailing in merchandising
- Visual Merchandising- Plan & Schedules, Types of display, Elements of display

Unit IV
Role of Mass Media in Fashion
- Role of Mass Media in promoting fashion
- Impact of Mass Media on fashion
Unit V
Cultural and Economic Empowerment through Textile Crafts

- Textile crafts in National economy
- Evolution and socio-economic significance of Khadi, Handloom and Handicraft sector
- Sustenance of traditional textile crafts
- Interventions by organizations

Reference:

2. Broucher Francois, A History of Costume in the West, Thames and Hudson.
8. Creative Clothing Construction, McGRAW Hill, 1973
## Semester- III

<table>
<thead>
<tr>
<th>Course Opted</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CC - 10 (Core Course)</td>
<td>Food Processing</td>
<td>5 (5+0)</td>
</tr>
<tr>
<td>CC - 11 (Core Course)</td>
<td>Food Science and Experimental Food</td>
<td>5 (5+0)</td>
</tr>
<tr>
<td>CC - 12 (Core Course)</td>
<td>Institutional Food Management</td>
<td>5 (5+0)</td>
</tr>
<tr>
<td>CC - 13 (Core Course)</td>
<td>Community Nutrition</td>
<td>5 (5+0)</td>
</tr>
<tr>
<td>CC - 14 (Core Course)</td>
<td>Practical</td>
<td>5 (0+5)</td>
</tr>
<tr>
<td>AECC - 2 (Ability Enhancement Compulsory Course)</td>
<td>Human Values &amp; Professional Ethics &amp; Gender Sensitization</td>
<td>5 (5+0)</td>
</tr>
</tbody>
</table>

**Total** 30
Semester - III

Core Course 10:

Food Processing

Full Marks: 70

Time: 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten questions (two questions from each unit) of two marks each.  
\[2 \times 10 = 20 \text{ marks}\]

Group B- Five questions (one from each unit) – each question of 5 marks, four to be answered.  
\[5 \times 4 = 20 \text{ marks}\]

Group C- Five questions (one from each unit) – each question of 10 marks, three to be answered.  
\[10 \times 3 = 20 \text{ marks}\]

Objectives:

This course will enable the students be

\[\square\] Acquire necessary knowledge of basic principles and procedures in the production of important food products
\[\square\] Gain basic knowledge about food processing and technology.
\[\square\] Understand food standard and related laws

Unit I

\[\square\] Food spoilage, role of microorganisms, food borne hazards of microbial origin

Unit II

Food preservation – principles & methods
Physical principles in undertaking food processing operation including thermal processing, ionizing radiation, refrigeration freezing and dehydration, Mineral processing

Unit III

Basic principles at food product developments need and types of food
Extruded foods- merit, demerits and use of Extruded foods
Organic Foods, Processing and packaging of Organic Foods and programme for production
Product evaluation techniques censoring evaluation and product testing
Fermentation technology – fermentation, enrichment and fortification

Unit IV

Packaging technique – packaging materials, types of packaging effects of packaging on nutritive value of foods, latest trends in packaging
Food labeling – definition, principles of labeling, nutrition labeling – research and testing

Unit V

Food standards and laws
Food additives, food color, flavoring agents, preservative, and antioxidants, emulsifying agents, and stabilizing agents
References:
1. Food processing and bioactive compounds – Y. S. Reddy
2. Food preservation and processing – Kalia Manoranjan Sood Sangita
3. Food Technology Processing and Laboratory Control – F. Aylword
4. Food Preservation and Processing – Kalin M
Core Course 11: Food Science and Experimental Food 05 Credits

Full Marks: 70

Time: 3 Hours

The pattern of question papers will be as under

Group A - Compulsory – ten questions (two questions from each unit) of two marks each.

Group B - Five questions (one from each unit) – each question of 5 marks, four to be answered.

Group C - Five questions (one from each unit) – each question of 10 marks, three to be answered.

2 x 10 = 20 marks

5 x 4 = 20 marks

10 x 3 = 20 marks

Objectives:
- To acquire knowledge regarding food groups
- To gain knowledge regarding cooking methods applied for specific food items

Unit I
Introduction to food science:
- Aims and objectives of the study of food science
- Food acceptability by variation in color, flavor and texture
- Physiochemical properties of food

Unit II
Carbohydrates in foods
- Sugar – Sources, properties and uses, stages of sugar cookery
- Starch – Sources, properties and uses, processed cereal products

Unit III
Protein cookery
- Pulses – composition, methods of cooking, germination and fermentation
- Meat – structure, common types, changes occurring during cooking of meat
- Fish – types, characteristics of fresh fish, cooking and preservation
- Egg – structure, methods of cooking, uses of egg in different preparations
- Milk – composition, effect of heat on milk, uses in cookery

Unit IV
Vegetables and fruits
- Classification, composition, color/pigments, effects of cooking on vegetables
- Fruits – Classification, composition, effect of heat and methods of preservation

Unit V
Nuts, oilseeds and beverages
- Nuts and oilseeds – composition and uses in cookery
- Beverages and appetizers- coffee, tea, fruit beverages and alcoholic beverages, milk based beverages, carbonated, non-alcoholic beverages and alcoholic beverages

References:
4. Sri Laxmi (2005), Food Science, 3rd Edition, New Age International Publisher
Core Course 12: Institutional Food Management 05 Credits

Full Marks: 70

The pattern of question papers will be as under

Group A: Compulsory – ten questions (two questions from each unit) of two marks each.

\[ 2 \times 10 = 20 \text{ marks} \]

Group B: Five questions (one from each unit) – each question of 5 marks, four to be answered.

\[ 5 \times 4 = 20 \text{ marks} \]

Group C: Five questions (one from each unit) – each question of 10 marks, three to be answered.

\[ 10 \times 3 = 20 \text{ marks} \]

Objectives:

This course is designed to:

- Provide practical field level experience in food administration
- Equip the students to have knowledge about various food service systems
- Impart knowledge of quantity cookery and quality control in food administration

Unit I

Introduction to Food Service

- Food service system and their development
- An introduction to Food Service Industry

Unit II

Food Service System Planning and Management Planning

- Strategies in planning
- Kitchen layout planning
- Pricing of product

Organization and Management

- Management Theories
- Tools of management
- Personnel management
- Organization and steps in organizing

Unit III

Food production

- Menu planning
- Food purchase
- Cost control
- Quantity Food production
- Standardization of recipes

Service Management

- Delivery and service of foods in different systems

Unit IV

Management of Social Institutes – family as institutes, child care and geriatric institutions

Unit V

Food Hygiene and Sanitation

- Sanitation and safety in food services

References:

2- dqedqe,oa fceyk lkbeu] vkgkj lsok izca/k A
Core Course 13: Community Nutrition

Full Marks: 70

Time: 3 Hours

The pattern of question papers will be as under

Group A: Compulsory – ten questions (two questions from each unit) of 20 marks each.

Group B: Five questions (one from each unit) – each question of 5 marks, four to be answered.

Group C: Five questions (one from each unit) – each question of 10 marks, three to be answered.

Objectives:

- Equip the community/public to have knowledge about various nutritional problems and their prevention
- Understand the causes and consequences of nutrition problems in society
- Acquire basic knowledge about various approaches to nutrition and health programmes
- Gain basic knowledge about food consumed by the community
- To assess nutritional status of the community

Unit I

- Concept of Public Nutrition, relationship between health and nutrition
- Nutritional problems prevalent in India and measures to combat them
- Bone health problems and dietary management

Unit II

- Assessment of nutritional status
  - Direct – Anthropometric, clinical and Biochemical
  - Indirect – Vital Static diet survey

Unit III

- Nutrition Education – objectives, planning, evaluation of nutrition education programme
- Selection of effective nutrition education method

Unit IV

- National and international agencies involved in women and child welfare
  - National agencies – ICDS, ICMR, ICAR and NIPCCD
  - International agencies – WHO, FAO, UNICEF

Unit V

- Primary health care of the community – National health care delivery system, Indicators of Health

References:

1. vkgkj ,oa iks"k.k fo$ku & MkWVdVj izfeyk oekZ] MkWVdVj dkqf & ik.Ms;
2. ekRdyk ,oa fkJkq dY;k.k & MkWVdVj c`ank flag
3. O;ko$kdf vkgkj f0Kxua ,oa vkgkj fpfdRlk & xhrk iq;i 'kkg] tkq1 'khk 'kkkW
4. Child Nutrition & Primary Education: Surendra Nath Mishra, Maharanjan Behera
5. vkgkj ,oa iks"k.k & ae LokehUkFku A
Core Course 14: Food Processing

Practical

05 Credits

Time: 3 Hours

The pattern of question papers will be as under

Group A- Compulsory - ten questions (two questions from each unit) of two marks each.

2 x 10 = 20 marks

Group B- Five questions (one from each unit) – each question of 5 marks, four to be answered.

5 x 4 = 20 marks

Group C- Five questions (one from each unit) – each question of 10 marks, three to be answered.

10 x 3 = 20 marks

Core Course: 10

Food Processing

- Physical principles in freezing and dehydration processing
- Chemical principle in food processing – Chemical changes in food that affect texture, sanitation and waste disposal
- Packaging – Latest trends in packaging, function and management.
- Food labeling – Definition, principles, nutritional labeling, food standards and laws.
- Quality control – risk analysis, Hazard Analysis Critical Control Point System (HACCP)

Core Course: 11

Food Science and Experimental Food

- Crystallization of sugar, stages of sugar cookery, preparation of peanut brittles, gulab jamun
- Study of changes occurring during cooking of meat, fish and egg Preparation of meat roast and minced meat fried and steamed fish, poached egg, omelettes, moonaise
- Effect of soaking and germination- preparation of dishes from soaked germinated grams sattu- litti and kheer
- Use of different methods of cooking vegetables and their effect on nutrients, steps to minimize losses
- Gelatin and frozen desserts – factors affecting ice crystal formation

Core Course: 12

Institutional Food Management

- Running and managing a food service institution cafeteria
- Quantity cookery – standardized portions
- Visit to various food service institutions.

Core Course: 13

Community Nutrition

- Development of low cost recipes for infants, preschoolers, elementary school children, adolescents, Pregnant and lactating mothers.
- Planning of cyclic menus for balwadi/nursery school, mid-day snack/school lunch.
- Survey: Dietary surveys and assessment of nutritional status
- Visits to the ongoing public health nutrition programmes
## Semester- IV

<table>
<thead>
<tr>
<th>Course Opted</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EC – 1</td>
<td>Practical Approach to Writing Research Activities</td>
<td>5 (0+5)</td>
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<tr>
<td>(Elective Course)</td>
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<tr>
<td>EC – 2</td>
<td>Internship/Dissertation/ Project/Seminar</td>
<td>5 (0+5)</td>
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<td>(Elective Course)</td>
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<tr>
<td>GE -1</td>
<td>Human Rights</td>
<td>5 (5+0)</td>
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<tr>
<td>(Generic Elective)</td>
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Total 15
Semester- IV

Elective Course1: Practical Approach to Writing Research Activities

05 Credits

Time: 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten questions (two questions from each unit) of two marks each.

Group B- Five questions (one from each unit) – each question of 5 marks, four to be answered.

Group C- Five questions (one from each unit) – each question of 10 marks, three to be answered.

Unit I
Writing for Grants – and Aid
- Getting familiar with the proposal format of different funding agencies: National and International level
- Project proposal presentation
- Proposal for Seminar / Conference / Workshop

Unit II
Different forms of research writing
- Dissertation
- Project report
- Articles in Journals
- Research notes and reports
- Review of article
- Review of books

Unit III
Power Point Presentation of any one from Unit I & II

Elective Course2: Internship / Dissertation / Project / Seminar 05 Credits

Internship Project:
The students shall be required to undergo and internship project for a total duration of 4-6 weeks in their chosen area of interest/ specialization /optional group that will facilitate their pursuing a professional career in the same field. They will be assigned the project work to be completed during the break after second semester. The organization/ institute (public/private) provicling internship facility to students should stand as good professional career support. The students will be required to submit and present a report of the internship project after completion of the same. It is also envisaged that the participating organization / institution will give the performance appraisal of the students work at the end of internship period.

Dissertation:
Every student shall be allotted a research supervisor. The research supervisor shall be from the Department of Home Science and if the topic so requires the co-guide could be from other semester. The topic of research will be finalized by the research supervisor in consultation with the Head of the Department. It is the responsibility of the research supervisor that the student is making the required progress in work. The student will have a give a presentation on the research proposal and a seminar on the findings of research before submitting the dissertation. The suggestions and constructive criticism of the faculty should be made use of
by student for further improving the draft of the dissertation. The study must be completed and submitted in the form of a dissertation by the end of the final year. Normally, the M.A. Dissertation is expected to cover 60-80 pages of A4 size, excluding bibliography and appendices. Three copies of the same should be submitted to the Department of Home Science. Each student submitting a dissertation must also submit three copies of the abstract of her dissertation not exceeding 300 words, excluding the title. Marks will be awarded, for research seminars practical exercises and viva-voce examination. Student shall give a formal presentation of the report before the jury comprising of minimum three internal faculty members including internal supervisor who will be appointed by the Director of the college. The external marks will be awarded the external examiner to be appointed by the examination division of the university. The format of the report is given below:

1. Research Objective
2. Literature Review
3. Research Methodology
4. Results and Analysis
5. Conclusion
6. References
7. Appendices – to include questionnaire, if any

Dissertation shall incorporate the certificate given by the internal supervisor regarding its satisfactory completion.

**Seminar**

A seminar will be presented based on the Dissertation