Department of Home Science

Patna University, Patna

M.A. Home Science Syllabus

First Semester & Second Semester — Compulsory papers

Third Semester & Fourth Semester — Specialization in **Food and Nutrition**

SEMESTER - I

1	2	3	4	5	6	7
Code	**Course Component**	**Name of the Course**	**Credit**	**Internal Assessment**	**End Semester Exam**	**Total Marks**
				Marks		
HSc M 101	Core (Theory)	Advanced Nutrition	5	30	70	100
HSc M 102	Core (Theory)	Advanced Study of Human Development	5	30	70	100
HSc M 103	Core (Theory)	Concept of Home Management	5	30	70	100
HSc M 104	Core (Theory)	Research Methodology and Statistics	5	30	70	100

SEMESTER - II

Code	**Course Component**	**Name of the Course**	**Credit**	**Internal Assessment**	**End Semester Exam**	**Total Marks**
				Marks		
HSc M 201	Core (Theory)	Textile and Apparel Design	5	30	70	100
HSc M 202	Core (Theory)	Environmental and Health Management	4	30	70	100
HSc M 203	Core (Theory)	Women's Studies	4	30	70	100
HSc M 204	Core (Theory)	A) Practical Approach to Writing Research Activities B) Basics of computer	7	30	70	100

SEMESTER - III

Code	Course Component	Name of the Course	Credit	Internal Assessment	End Semester Exam	Total Marks
				Marks		
HSc M 301	Special (Theory)	Food Science and Experimental Food	4	30	70	100
HSc M 302	Special (Theory)	Therapeutic Nutrition	4	30	70	100
HSc M 303	Special (Theory)	Institutional Food Management	4	30	70	100
HSc M 304	Special (Theory)	Practical	8	30	70	100

SEMESTER - IV

Code	Course Component	Name of the Course	Credit	Internal Assessment	End Semester Exam	Total Marks
				Marks		
HSc M 401	Special (Theory)	Food Processing	4	30	70	100
HSc M 402	Special (Theory)	Maternal and Infant Nutrition	4	30	70	100
HSc M 403	Special (Theory)	Community Nutrition	4	30	70	100
HSc M 404	Special (Theory)	Internship / Dissertation / Project / Seminar	8	30	70	100

CORE PAPERS

SEMESTER - 1

Advanced Nutrition

Code : HSc M 101 **05 Credits**

Full Marks : 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten question s (two question 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

Objectives :

This course will enable the students to :

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

Unit I

History of Nutrition

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
- Functions DNA and RAN

Unit III

Lipids

- Classification of Lipids
- Structure, properties and functions of Lipids.
- Metabolism and nutrition 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 and their role in metabolism (vitamin A Iron and Iodine)

Reference :

1. M. Swaminathan : Advance text book on Food and Nutrition Vol. II
2. Paul and R., Elen T. Ross: Nutrition.
3. A.C. Deb : Fundamentals of Biochemistry.
4. H.S. Srivastava : Elements of Biochemistry.
5. A.K. Bery : Few Rasayan ki Pathya Pshtika.

SEMESTER - 1

Advance Study of Human Development

Code : HSc M 102 **05 Credits**

Full Marks : 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten questions (two question 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

Objectives :

This course will enable the students to :

- To have an Overview of Development from Prenatal stage of Adolescence
- To develop an awareness of important aspects of all Development stages
- To understand and develop an awareness of the stages of Adulthood and Old Age

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
- Main 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 in Infant

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

Middle childhood (7-11 years)

- Physical and Motor Development.
- Personality Development- Characteristics.
- Imagination and cognitive Development
- Social Relationship- Peer, Siblings and Parents.

Reference :

1. Rice, F.P (1995). Human Development, New Jersey : Prentice Hall.\
2. Santrock, J.W. & Yussen, S.R. (1988). Child Development: An Introduction. Lowa: Wm.C Brown Publishers.
3. Cole, M. & Cole, S. (1993). The Development of Children. (2^{nd} Ed.) New York: scientific American Books Freeman & Co.

SEMESTER - 1

Concept of Home Management

Code : HSc M 103 **05 Credits**

Full Marks : 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten question (two question 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

Objectives:

This course will enable the students to:

- 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 organization

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 in study of Ergonomics

Unit V

Work simplification process and time motion economy

Reference :

1. Introduction hot Home Management by Bettye B. Swanson, Macmillan Publishing Company
2. Home – Today & Tomorrow by Ruth F. Sherwood.
3. The House – its plan and use by Tersie Agan M.S. Oxford & IBH Publishing House
4. Management for Modern families by Gross Grandall, Knoll Prentice Hall, International INC, Englewood, New Jersey
5. Grih Prabanth by Manju Patni
6. Grih Prabandh and Grih Vyavastha by Brinda Singh

SEMESTER - 1

Research Methodology and Statistics

Code : HSc M 104 **05 Credits**

Full Marks: 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten questions (two question 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

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
  a. Selection and formulation of research problem
  b. Specifying objectives
  c. Formulation hypothesis
  d. Deciding variables

Unit II

Stages involved in Research Process

Unit III

Methods of Sampling

- Characteristics of good sampling
- Probability or random sampling
- Non-probability sampling

Unit IV

Research Tools

- Levels of data measurements and characteristics of god measurement
- Types of tools and their uses
  a. Questionnaire
  b. Schedule
  c. Attitude scale
  d. Rating scale
  e. Interview – structured and unstructured
  f. Observation – participant and non-participant

Unit V

Concept of data

a. Types of Data – Qualitative and Quantitative data analysis
b. Analysis of Data – Qualitative and Quantitative data analysis

Practical

- List research areas in Home Science
- Prepare synopsis/outline of dissertation work
  a. Select problem for dissertation from literature research, experiences of guide, teacher, and experiment/pilot study.
  b. Find out key words, their meaning and definition from dictionary and encyclopedias.
  c. Design conceptual model of the study
  d. Collect review on selected variables from national and international journals and prepare note cards and reference cards (follow the rules of scientific writing)
  e. Decide the prepare tools measurement of variables
  f. Specify objectives
  g. Frame hypothesis
  h. Select locale of the study
  i. Decide sample size and sampling techniques
  j. Decide applicable statistical tests
- Conduct pilot study for calculating validity, reliability and usability of the tools.
- Prepare master table for analysis
- Prepare time schedule and note down facilities required for dissertation work.

Reference :

1. Bell, J (1997): Doing Your Research Project: A Guide for First-time Researchers in 1.3 Research process Education and Social Science, Viva Books, New Delhi
2. Bell, J (1997): How to Complete Your Research Project Successfully: A Guide for First time Researchers, UBSPD, New Delhi,

3. Bulmer, M.C. (1984): Sociological Research Methods An Introduction, Macmillan, HongKong.
4. Festinger, L. and Katz, D. (ed.) (1977): Research Methods in the Behavioral Sciences, Amerind Publishing, New Delhi.
5. Holloway, I. (1997): Basic Concepts of Qualitative Research, Blackwell Science, London.
6. Jain, G. (1998): Research Methodology: Method and Techniques, Mangal Deep, Jaipur.
7. Kothari, C.R. (2000): Research Methodology: Method and Techniques, Wishwa Prakashan, New Delhi.
8. Kumar, A. (1997): Social Research Method (The Art of Scientifics Investigation), Anmol Publication, New Delhi.
9. Kumar, A. (2000): Research Methodology in Social Sciences, Sarup and Sons, New Delhi.
10. Mc Burney, D.H. (2001): Research Methodology, Thomson-Wadsworth, Australia.
11. Pande, G.C. (1999): Research Methodology in Social Science, Anmol Publication, New Delhi.

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 kutosis.

Reference :

1. GUPTA, S. (2001) "Research Methodology and Statistical Techniques, Deep and Deep, New Delhi, 510p.
2. HOODA, R.P. (2003) "Statistics for Business and Economics", 3rd ed., Macmillan India Ltd. Delhi, 855p.

3. DEY, B.R. (2005) “Textbook of Managerial Statistics”, Macmillan India Ltd. Delhi, 318p.
4. Fleming, M.C. & Nellis, Joseph G. (1997) “The Essence of Statistics for Business”, Prentice-Hall of India, New Delhi, 270p.
5. Sarma, K.V.S. (2001) “Statistics made simple: Do it yourself on PC”, Prentice-Hall, New Delhi, 257p.
6. Chakroborty, S.R. & Giri, N. (1997) “Basic Statistic”. South Asian pub,. New Dehli, 271p.
7. Das, M.N. (1989) “Statistical Methods and Concepts,”, New Age, New Delhi, 256p.
8. Elhance, D.N. (2000) “Fundamentals of Statistics [containing more than 750 solved and 1250 problems for review exercise]”, Kitab Mahal, Allahabad, 1523p.
9. Goon, A. & Gupta, M & DASGUPTA, B. (2001) “Fundamentals of Statistics”, Vol.1 & II. The World Press, Calcutta, 150p.
10. Gupta, S.P. (1996) “Practical Statistics”, 37th ed. S, Chand, New Delhi, 563p.
11. Gupta, S.C (2000) “Fundamentals of Statistics”, Himalaya Pub,. Mumbai, 1343p.
12. Gupta S.P. (2000) “Statistics Methods”, Sultan Chand & Sons, New Delhi, 1428p.
13. Gupta C.B. & Gupta, V. (1973) “An Introduction to Statistical Methods”, Vikas publishing house pvt. Ltd. New Delhi, 829p.
14. Nagar, A.L. & Das, R.K. (1997) “Basic Statistics”, 2nd ed. OUP, Delhi, 424p.
15. Shenoy, G.V. & Pant, M. (2006)” Statistics Methods in Business and Social Science”, Macmillan India Ltd., Delhi, 288p.
16. Spiegel, Murray R. (1998) “Schaum’s Outline of Theory and Problems of Statistics”, 3rd ed. Tata McGraw-Hall Pub,. New Delhi, 538p.
17. Triola, Mario F. (1998) “Elementary Statistics”, 7th ed. Addison Wesley Longman, America, 804p.
18. Richard A. (1992) “Applied Multivariate Statistics Analysis”, Prentice-Hall, New Delhi, 642p.

CORE PAPERS

SEMESTER – II

Textile and Apparel Design

Code : HSc M 201 **05 Credits**

Full Marks : 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten question s (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

Objectives:

This course will enable the students to:

- To understand concept of design as related to apparel and fabric.
- To enhance awareness and appreciation of art and aesthetics through design.
- To develop creative and technical skills in designing through sketching and drawing on paper and dyeing and printing of fabric.

Unit I

- Elements of design- line/shape/ texture, colour
- Principles of design- repetition, gradation, rhythm (Harmony), contrast, emphasis, proportion, balance, unity.

Unit II

- Principles of merchandising – local and export quality control.

Unit III

- Fashion and designing trends in past, present and future (History of Indian Fashion and its relevance in present day of fashion.)

Unit IV

- Role of mass media, advertising and its uses in promoting fashion.

Unit V

Essential strategies for a successful fashion designs

- Consumer and textile market

- Mode of living
- Purchasing power
- Availability and Price.
- Fashion
  A – Textile product, consumer ship buying guides and criteria
  B – Design selecting in relation to figure, complexion, climate, occasion and fashion

Reference :

1. J. Anderson Black, Muidge Garland, A History of Fashion, Orbis Publishing Ltd, London
2. Broucher Francois, A History of Costume in the West, Thames and Hudson.
3. Sharon Lee Tete, Inside Fashion Design, Harper and Row Publishers, New York.
4. Kathryn Samuel, Life Styles, Fashion Styles, Orbis Publishing Ltd. London.
5. Carter E. (1977), The Changing World of Fashion, G.P. Putnam’ s Sons, New York.
6. Carr H.and Pomery J. (1992) , Fashion Design and Product Development, Blackwell Scientific Publications, London, Edinerg.
7. Complete guide to Sewing. Reader’ s Digest Association, New York.
8. Creative Clothing Construction, McGRAW Hill, 1973

SEMESTER – II

Environmental and Health Management

Code : Hsc M 202 **04 Credits**

Full Marks : 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten question s(two question 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

Objectives:

- To be aware of the holistic ecological approaches to environment.
- To be aware of the environmental problems, hazards and risks.
- To understand the aspects of environmental pollution and waste management.
- To be aware of the environmental policies, movements and ethics.

Unit I

Environmental Pollution

- Types of environmental pollution
- Sources, effects and control of air pollution
- Water pollution
- Noise pollution
- Ionizing radiation and ratio- active materials

Unit II

Environmental Policy of India

- Development of National Policy for Environment Protection
- Legal Mechanism
- Environmental legislations
- Environmental Protection Act 1986
- Environmental Policy and Management

Unit III

- Basic Education and Environmental Awareness- definition of environment, scope, conservation and sustainable development of natural resources

Unit IV

- Health and Environment
- Indicators of health
- Factors affecting health – environment, heredity, hygiene, cultural factors, ecological factors, physical and chemical factors.

Unit V

- Public health and health education
- Health Care Delivery System
- National and international Organizations working for improving health status of people- ICMR, WHO, UNICEF etc.

Reference :

1. D.B.N. Murthy, Environmental Awarenes and Protection. Deep & Deep Publications Pvt. Ltd. New Delhi
2. P.P. Singh & Sudhir Sharma, Environment and Pollution Education, Deep & Deep Publication Pvt. Ltd. New Delhi.
3. N. Vasudevan, Essentials of Environment Science, Narosa Publishing House, New Delhi
4. Bhave V.M. and others, You and Your Health, National Book Trust of India, 1978 (Gujrat), New Delhi
5. Clark and Henerson, Community Health, Churchill Livingston, 1983
6. Dalzellward A.J.A, Textbook of Health Education.
7. Naik J.P., An Alternative of Health Care Services in India : Some Proposals, Bombay allied Publication, 1977

SEMESTER – II

Women's Studies

Code : HSc M 203 **04 Credits**

Full Marks : 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten question s (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

Objectives:

- To develop awareness regarding status of women in India and sensitivity of women's issues and concern.
- To enable women to become champions in changed 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-Vedia age, Pauranic Period, Mauryan Period, Gupta, Medival, Feugal Period, Buddhist Period, British Period. Women in Post-independece 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
- Honour 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 foeticides
- 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 :

1. Asthana P. (1974), Women's Movement in India, Vikas Delhi.
2. Antony M.J. (1985), Womens Rights : Dialogue, New Delhi
3. Okim S.M. (1989), Justice, Gender and Family, Basic Book, New York.
4. Pant N. (1995), Status of Girl Child and Women in India, Delhi, APH.
5. Girl Child in india – Devasia Leelamma
6. Srivastava T.N. (1985), Women & Law" Intellectual, New Delhi
7. Baker H.A. Berheide, G.W. and Others (Eds), 1980, Wome Today: A Multidisciplinary Approach to Women's Studies, Books/Cole Publications.
8. Desai N. & Patel. V., Indian Women: Change and Challenges in the International Decase : Popular Prakashan, Bombay.
9. Gupta, N.K. & Sudan I.K. (1990), Women at work in Developing Economy, Amol, New Delhi
10. Parashar, A(1992), Women and Family Law reforms in India: Uniform Civil Code and Gender Equality, Sage Publications. New Delhi
11. Namita Agrawal, Women and law, New Century Publication. New Delhi
12. Vianellow M. & Siemienska R. (1990), Gender Inequality: A Comprehensive Study of Discrimination and Participation, Sage Publications, London.
13. Sharma U. (1989), Brides are not for burning: Dowry Victims in India, Radiant, New Delhi
14. Women in a Changing Society by S.K. Ghosh.

SEMESTER – II

A – Practical Approach to Writing Research Activities

Code : HSc M 204 **04 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.
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

Unit I

Writing for Grants – in 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

B - Basics of Computer

- Windows
- A – Desktop, screensaver, wallpaper, notepad, word Pad, Calculator, paint
- Document Management
- Floppy Management
- **MS Word**
  A-Menu (File, edit, view etc)
  B- Text formatting (indent margins, page breaks bullets, drop cap, borders tabs stops)

C –Toolbars (word art, tables and borders, auto-text, standard, formatting, drowing)
D- Mail merge

- **MS Excel**
  A – Features (work book & worksheets)
  B- Menus (File, edit, insert, format, tools data etc.)
  C- Functions (mathematical, statistical, pie, etc.)
  D- Chart types & features (area, line, pie, etc.)
  E – Toolbars (formula bar, drawing etc.)
- **MS Power point**
  A- Feature (different views)
  B – Elements (File, edit, insert , format, tools, slide show etc.)
  C – Layout
  D – Network neighborhood
  E – Presentation
- **Corel Draw**
  A – Designing tools
  B – Fills (pattern, texture etc.)
  C – Additional tools like trim, weld etc.)
  D – Measurements
  E - Layout
- **Internet**
  A- Browsers
  B- Getting to the net
  C – E-mail. Chat etc.

SEMESTER – III

Food Science and Experimental Food

Code : HSc M 301 **04 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.
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

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 colour, 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, colour/pigments, effects of cooking on vegetables.
- Fruits- classification, composition, effect of heat and methods of preservation.

Unit V

- Nuts and oilseeds – composition and uses in cookery.
- Beverages and appetizers- coffee, tea, fruit beverages and alcoholic beverages, milk bases beverages, carbonated, non-alcoholic beverages and alcoholic beverages.
- Gelatin – gelatin, gel, strength, ability of foam.

References :

1. Charley H. (1982), Food Science, 2nd Edition, John Wiley and Sons, New York.
2. Potten N and Flotch Kiss. JH (1996), Food Science, 5th Edition, CBS, Publishers and Distributors, New Delhi
3. Food Chemistry and Experimental Foods by M.Swaminathan, Ganesh & Co., Madras
4. Sri Laxmi (2005), Food Science, 3rd Edition, New Age International Publishers.

SEMESTER – III

Therapeutic Nutrition

Code : HSc M 302 **04 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.
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

Objectives:

- Understand the etiology, physiologic and metabolic anomalies of acute and chonic 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.

Unit II

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

- Diabetes mellitus
- Nutritional Anemia
- Liver disorders : Jaundice, Hepatitis
- Diseases of the Cardio Vascular System

Unit III

- Cancer – types, causes, symptoms and dietary management.
- Renal diseases – classification, etiology, symptoms and dietary management.

Unit IV

- Safe motherhood
- Menopause and its problems

Unit V

- Dietary counseling- steps and techniques, dietary counseling needs and its objectives.

References :

1. M. Swaminathan, Advanced Textbook on Food and Nutrition.
2. R. C. Mishra, Health and Nutrition Education.

3- vkgkj ,oa iks"k.k foKkua & MkWDVj c`ank flag

4. P. Jnaki Rao, Nutrition and Food Science.
5. Shubhangini M. Joshi, Nutrition and Dietetics.
6. B. Shrilaxmi: Dietetics, 4th Edition.
7. F.P. Anita & Philip Abraham : Clinical Dietetics & Nutrition, 4th Edition.
8. Carrol Lutz and Karen Przytulski : Nutrition and Diet Therapy.

SEMESTER – III

Institutional Food Management

Code : HSc M 303 **04 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.
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

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

- 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

Management

- Organization and Management
- Personnel management
- Cost control
- Sanitation and safety

Unit III

Food Service Operations

Food management

- Menu planning
- Food purchase

Quantity Food Production

- Kitchen production
- Quantity Food production
- Food cost control

Service Management

- Delivery and service of foods in different systems.

Unit IV

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

Unit V

- Management of Educational Institutes – Pre School, Primary and Secondary Schools, Colleges and Universities.

References :

1. West & Wood "Food service in Institutions – Johu Wiley & Sons, 1977
2- dqedqe ,oa fceyk lkbeu] vkgkj lsok izca/k A
3. Mohini Seth, Institutional Food Management, New Age International Puclishers.

SEMESTER – III

Practical

Code : HSc M 304 **08 Credits**

Code : HSc M 301

- 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, omllets, moonaise.
- Effect of soaking and germination- preparation of dishes from soaked germinated grams sattu- litti and kheer.
- Use of different methos of cooking vegetables and their effect on nutrients, steps to minimize losses.
- Gelatin and frozen desserts – factors affecting ice crystal formation.

Code : HSc M 302

- Plan and prepare diet for the above diseases and calculate the nutrients. Planning a day's meal and calculate diets for following diseases : -
- Diet in Diabetes with and without insulin.
- Diet in Cardio – vascular Disease (500mg and 1000mg sodium restricted diet)
- Diet in liver disease
- Diet in Post –operative stage
- Diet in Renal disorders
- Diet in kidney diseases
- Vitamin A rich Diet

Code : HSc M 303

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

SEMESTER – IV

Food Processing

Code : HSc M 401 **04 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.
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

Objectives:

This course will enable the students be

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

Unit I

- 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 at packaging effects of packaging n the 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 underlying food processing – Thermal processing ionizing radiation, agents, preservative, and antioxidants, emulsifying agents, and stabilizing agents.

Practical

- 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).

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.

SEMESTER - IV

Maternal and Infant Nutrition

Code : HSc M 402 **04 Credits**

Full Marks : 70 Time : 3 Hours

The pattern of question papers will be as under

Group A- Compulsory – ten question (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

Objectives:

This course will enable the students be

- Understand physiological changes in pregnancy and lactation.
- Get acquainted with growth and developmental changes from conception till adolescence.
- Understand the inter-relationship between nutrition and growth and development during 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 – prenatal breast feeding skill deduction. 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. Swaminathann : Food and Nutrition.
2. vkgkj ,oa iks"k.k foKkua & MkWDVj c`ank flag
3. vks0ih0 VaMu & ekuo 'kjhj jpuk ,oa fdz;k foKkua
4. vkgkj ,oa iks"k.k foKkua & MkWDVj Vhuk [kuwtk
5. Health Mathers : Archana Sinha
6. Nutrition and Child Development : 4th Edition, KE Elizabeth.

SEMESTER – IV

Community Nutrition

Code : HSc M 403 **04 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.
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

Objectives:

- Equip the community/ pulic to have knowledge about various nutritional problems and their prevention.
- Understand the causes and consequences of nutrition problem 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, 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 foKkua & MkWDVj izfeyk oekZ] MkWDVj dk¡fr ik.Ms;
2. ekRdyk ,oa f'k'kq dY;k.k & MkWDVj c`ank flag
3. O;kogkfjd vkgkj foKkua ,oa vkgkj fpfdRlk & xhrk iq"i 'kkg] tk;ql 'khyk 'kkW
4. Child Nutrition & Primary Education : Surendra Nath Mishra, Maharanjan Behera
5. vkgkj ,oa iks"k.k & ,ae LokehUkFku A

SEMESTER – IV

Internship / Dissertation / Project / Seminar

Code : HSc M 404 **08 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) providing 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 participaging 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 on the Dissertation.