RRBM UNIVERSITY, ALWAR

SYLLABUS

M.A./M.Sc. (HOME SCIENCE)

Annual Scheme

Eligibility for (boys and girls both) this course: (B.A(H.Sc) / B.A additional (H.Sc) / B.Sc (H.Sc)

Examination Scheme:

The question paper will have four sections/units. Paper setter will set a total of nine questions comprising one compulsory question 10 shore answer type) covering the whole syllabus and two questions from each section/unit. Students will attempt one question from each section/unit and one compulsory question. All questions will carry equal marks...

M.A/MSc.FINAL (Annual Scheme)

FOOD AND NUTRITION

THEORY: Max Marks:100

Min Marks:36

Paper V- Therapeutic Nutrition and Management
Paper VI-Food Safety and Food Microbiology
Paper VII-Nutrition for Health and Fitness
Paper VIII-Maternal and Child Nutrition

PRACTICALS: Max Marks: 100

Min Marks:36

Practical-1.Therapeutic Nutrition and Management: 50 Marks

Practical-2. Microbiology and Mother-Child Nutrition: 50 Marks

Project work: Max Marks-50

Min Marks-18
Project work in any field/topic of Nutrition

Paper - V Therapeutic Nutrition and Management

Teaching Hours: 4 Periods/Week
Maximum Marks: 100

UNIT - I

1. Therapeutic Nutrition, Medical Nutrition Therapy (MNT), Normal Diet, Clear-Fluid Diet, Full Fluid Diet, Soft Diet.
2. Special Feeding Methods: Enteral, Parenteral, TPN
3. Preoperative Diet, Post Operative Diet, Immunonutrition, Nutrition Support in Burns.
4. Eating Disorders: Anorexia Nervosa, Bulemia Nervosa
5. Febrile Conditions: Metabolic Changes and Nutritional Management of acute and chronic fevers, viral Infection.

UNIT-II

Etiology Symptoms, Nutritional Therapy, and Management of Gastro-Intestinal Diseases:

i)Gastro-Esophageal Reflux Disorder (GERD)
ii)Peptic Ulcer
iii)Celiac Disease, Lactose Intolerance
iv)Ulcerative Colitis, Crohn's Disease
v) Constipation
vi) Diarrhoea, IBS

UNIT -III

Etiology, Symptoms, Nutritional Therapy, and Management of :

i) Fatty Liver
ii) Hepatitis
iii) Cirrhosis
iv) Diabetes Mellitus
v) Gout

UNIT-IV

1. Risk Factors, Nutritional Therapy, and Management of Cardiovascular Disease:

i) CVD and Atherosclerosis, Hyperlipidemia
ii) Hypertension- Causes types, Symptoms, and Dietary Management and lifestyle Modification. DASH

2. Etiology, Symptoms, Nutritional Therapy, and Management of Renal Disorder :

i) Glomerular Nephritis - Acute and Chronic
ii) Nephrotic Syndrome
iii) Renal Calculi
iv) Dialysis

REFERENCES:

1 B. Srilakshmi, 2011'Dietetics' New Age International Publishers, New Delhi Mahan L. K. and Escott Stump S. (2008) Krause's Food & Nutrition Therapy 12th ed Saunders-Elsevier.

2. Nutrition Society Textbook Series. Blackwell Publishing Company,

3. William's Basic Nutrition and Diet Therapy, 13th Edition. Stacy Nix (2009) Elsevier Mosby. Garrow, J.S., James, W.P.T. and Ralph, A. (2000) Human Nutrition and Dietetics. 10th ed. Churchill Livingstone.

4.StewartTruswell A. (2007). Essentials of human nutrition. New York: Oxford. Mahtab S Bamji. (2010). Textbook of human nutrition. Delhi: Oxford. Babasahib and Desai. (2000). Handbook of nutrition and diet. New York.

JOURNALS:

1. Nutrition Update Series
2. World Review of Nutrition and Dietetics
3. Journal of the American Dietetic Association
4. American Journal of Clinical Nutrition
5. European Journal of Clinical Nutrition
6. Nutrition Reviews
7. Indian Journal of Nutrition & Dietetics.

Paper -VI Food Safety and Food Microbiology

Teaching Hours: 4 Periods/Week
Maximum Marks: 100

Unit I Food Handling and Safety

1. General rules for hygienic storage and handling, pesticides recommended for use in the kitchen and precautions to be taken in handling food at the time of preparation, Use of leftover food.

2. Sensory evaluation of food, sensory characteristics of food, requirements for conducting sensory tests, evaluation, selection of panel members, and limitation of sensory evaluation

3. **Food Hygiene** – Sources of contamination of food, cleaning, and sanitation in food processing in home and industry. Food plant sanitation, hygienic handling, processing, packaging, and service of food.

Unit-2 Food Security

1. Availability, access, utilization stability

2. Effects of food security
a)Stunting and chronic nutritional deficiencies
b)Global water crisis
c)Land degradation
d)Climate change
e)Agricultural diseases

Unit – 3 Food Science and Food Microbiology

1. Food microbiology: introduction to microbiology: microorganism importance in foods

2. Cultivation of microorganisms: sterilization and disinfection

3. Microbes in foods and fermented foods, food sanitation: Microbiology of food plant sanitation, personal testing, water, and milk testing, microbiological criteria for food testing Food toxicants

4. Beneficial microorganisms – Sources, characteristics biochemical activities, and their use in food products.

Unit - 4

1. **Food spoilage** – Causes, Microbial growth in foods, factors affecting the growth of Microorganisms in food.

2. **Contamination and microorganisms in spoilage of different kinds of foods** – Cereals and cereal products, vegetables, and fruits, fish and seafood, milk and milk products, eggs, meat and meat products, canned and bottled food.

3. **Contamination of water** – Microorganisms in contaminated water, test for contamination, standards for drinking water.

4. **Food Borne Diseases** – Sources, symptoms, and methods of prevention and control.

REFERENCES

- Frazier: Food Microbiology,
- Sumathi Mudambi: Food Science
- R. Anathanarayan & C.H. Jayaram: Text Book microbiology

Paper VII - Nutrition for Health and Fitness

Teaching Hours: 4 Periods/Week
Maximum Marks: 100

Unit - I

1. **Carbohydrates** – Classification, functions, sources, Digestion and absorption, Regulation of blood glucose concentration, dietary fiber, resistant starch, Glycaemic Index.

2. **Proteins** – Classification, food sources, functions, Digestion, absorption, and transport, nutritional requirements.

3. **Fats** – Types, Functions, sources and their metabolism, nutritional requirements, diseases, excessive fat intake.

4. **Water and Electrolyte Balance.**

Vitamins and Minerals – Types, sources, functions, requirements, deficiency, toxicity and preventive measures.

Unit -II

1. **Food components other than essential nutrients** – Functional foods, Bioactive substances from protein foods, Nonglycerides in edible oils, Probiotics and Prebiotics, Polyphenols, Phytoestrogens, other dietary factors with antinutritional effects like Protease inhibitors, Saponins, Amylase inhibitors, Lectins or Haemagglutinins, Phytates, and their health benefits.

2. Nutrition during different stages of the life cycle.

3. **Sports Nutrition** – Concept Techniques of measuring body composition, work capacity, physical fitness, Nutritional demands of sports and dietary recommendations, ergogenic aids.

Unit - III

1. **Holistic approach to the management of fitness and health** – Energy input and output Diet and exercise. Effect of specific nutrients on work performance and physical fitness.

2. Nutrition, exercise, physical fitness, and health interrelationship.

3. **Review of different energy systems for endurance and power activity** – fuels and nutrients to support physical activity, shifts in carbohydrate and fat metabolism, and Mobilization of fat stores during exercise.

References:

1. Williams, S.R. B.S. Worthington Roberts (1988). Nutrition throughout the life cycle. Times mirror, mostly college publishing St. Louis.

2. Whitney. E.R. and S.R Kolfes (2002) Understanding Nutrition 9th ed. Wadsworth Thomson Learning, Australia.

3. Thompson, L.U. (1993) Potential Health Benefits and problems associated with antinutrients in foods. Food Research International. 26; 134 – 149.

4. Gibson, G.R. and M.B. Roberfroil (1999) Caloric Mirobio, Nutrition and health, Kluwer Academic Publishers, Dordrecht.

Paper VIII: Maternal and Child Nutrition

Teaching Hours: 4 Periods/Week
Maximum Marks: 100

UNIT I

1. **Importance of maternal nutrition:** Physiology and endocrinology of pregnancy and embryonic and fetal growth and development.

2. Nutritional requirements during pregnancy: Importance of nutrition prior to and during pregnancy. Prerequisites for a successful outcome.

UNIT II

1. Effect of undernutrition of mother and child including pregnancy outcome and maternal and child health, pregnancy, and AIDS, T.B.

2. Intra-uterine growth retardation, complications of pregnancy and management, and importance of antenatal care.

UNIT-III

1. Lactation- Development of mammary tissue and role of hormones, physiology, and endocrinology of lactation – synthesis of milk components, let down reflex, the role of hormones, lactation amenorrhea, effects of breastfeeding on maternal health.

a) Human milk composition and factors affecting breastfeeding and fertility.

b) Management of lactation – Prenatal breastfeeding skill education, rooming-in, problems – sore nipples, engorged breast, inverted nipples, etc. Exclusive breastfeeding.

2. Growth, development, and nutritional problems during infancy and childhood.

References :

1. International Child Health: A Digest of current information.
2. Barker, D.J. P (1998), Mothers, Babies and Health in later life. Edinburgh, Churchill Livingstone.
3. Ward, R.H.T; Smith, S.K. Donna, D. (Eds.) (1994) Early fetal Growth and Development. London, & COG Press.
4. Wallace, H.M. and Giri, K. (1990), Health care of women and children in developing countries, third party publishing co.Oakland.

Practical I: Therapeutic Nutrition and Management

Max. Marks:50
Duration of Exam: 3 Hrs.

1. As related to the theory - Planning, preparation, and serving diets for all the conditions mentioned in the theory keeping in mind the economic, regional, and cultural factors

2. Students are required to undergo one-week training in a hospital. certificate to be obtained from the hospital OR presentation of the visit to various institutions like Anganwadis/hospitals/ diet counseling center and report writing.

3. Preparation of diet counseling aids, preparation of questionnaire OR interview schedule to record patient details.

4. Planning and preparation of recipes of the following types – Normal, soft, semi-solid, low fat, low calorie, high fiber, low fiber, low residue, bland, high protein, low protein, etc.

5. The market survey of commercial nutritional supplements and nutritional supports substrates.

6. Diet plan for following disorders.
    a. Weight imbalance.
    b. Diabetes Mellitus and Gout.
    c. Gastrointestinal disorders.
    d. Renal disease.
    e. Liver disease
    f. Fever
    g. Lactose intolerance.
    h. Heart Disease.

7. Preparation of diet counseling aids for common disorders.

8. Report and presentation of the case study.

Practical II: Microbiology and Mother-Child Nutrition

Max. Marks:50

Duration of Exam: 3 Hrs.

1. Study of various microbiological laboratory equipment.
2. Microbiological analysis of water, milk, and curd
3. Microbiological analysis of fruits, vegetables, meat, cereals, and canned foods.
4. Assessment of surface sanitation and hygiene of food preparation units.
5. Visit a food processing unit or any other organization dealing with advanced methods in food microbiology.
6. Study the effect of cooking on cereals, pulses, vegetable fruits, eggs, meat, and sugar.
7. Determination of physical characteristics and presence of any additives.
8. Determination of moisture and impurities in a sample of fat.
9. Identification of nutritional problems among pregnant ladies.
10. Planning nutritive recipes for pregnant and lactating mothers.
11. Market survey of products available for pregnant and lactating mothers.
12. Planning nutritive recipes for supplementary feedings of infants.