MANONMANIAM SUNDARANAR UNIVERSITY

TIRUNELVELI

PG - COURSES – AFFILIATED COLLEGES

Course Structure for M.Sc . Dietetics and Food Management

(Choice Based Credit System)

(with effect from the academic year 2017- 2018 onwards)

Sem (1)	**Sub. No. (2)**	**Subject Status (3)**	**Subject Title (4)**	**L (5)**	**T (6)**	**P (7)**	**C (8)**
III	14	Core - 14	Nutritional Biochemistry	4	2	0	4
	15	Core - 15	Food Processing and Preservation	4	2	0	4
	16	Core - 16	Advanced Baking	4	1	0	4
	17	Core - 17	Research Methodology	4	1	0	4
	18	Core - 18 Practical - 5	Food Processing and Preservation -I	0	0	4	2
	19	Core - 19 Practical - 6	Advanced Baking-I	0	0	4	2
IV	20	Core - 20	Human Factors & Ergonomics	4	0	0	4
	21	Core - 21	Food Quality Control	4	0	0	4
	22	Core - 22	Nutrition For Fitness	4	0	0	4
	23	Core - 23 Practical - 7	Food Processing and Preservation-II	0	0	4	2
	24	Core - 24 Practical - 8	Advanced Baking-II	0	0	4	2
	25	Elective - 1	Elective / Field Work / Study Tour	0	0	3+	3
	26	Core - 25	Project (Individual)	0	0	7+	8

MSU/ - 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester III / Ppr.no.14 / Core 14

NUTRITIONAL BIOCHEMISTRY

Objectives **L T P C**

4 2 0 4

1.Augment the biochemistry knowledge acquired at the undergraduate level.

2.Understand the mechanisms adopted by the human body for regulation of metabolic pathways.

3.Get an insight into interrelationships between various metabolic pathways.

4.Become proficient for specialization in nutrition.

5.Understand integration of cellular level metabolic events to nutritional disorders and imbalances.

Unit I

Carbohydrates

a) Structure and its properties-Monosaccharide- glucose, fructose, galactose

b) Disaccharides- Maltose, Lactose, sucrose. Polysaccharides- Starch and glycogen.

c) Carbohydrate metabolism- Glycolysis, Gluconeogenesis, Glycogenesis, TCA cycle.

(12L+6T)

Unit II

Protein

a) Structure and properties. Deamination, transamination, decarboxylation, urea cycle.

b) Nutritional classification protein, determination of nutritive value of proteins- PER, Digestibility coefficient, BV, NPR, NPU, Chemical score, nitrogen balance, supplementation of protein.

c) Fluid, electrolyte and acid base balance. **(14L+6T)**

Unit III

Lipids

a) Lipid- properties of lipid. Iodine, saponification and peroxide value.

b) Lipid metabolism- β oxidation of fatty acids. **(10L+6T)**

Unit IV Vitamins & Minerals

a) **Vitamins:** Structure, biochemical properties, functions and sources.

b) **Minerals:** Structure, biochemical properties, functions and sources. **(10L+6T)**

Unit V Enzymes & Co-enzymes

a) Enzymes- Definition, classification of enzymes and factors influencing enzyme action.

b) Co-enzyme- Definition and its types.

c) Structure and function of DNA- transcription and replication.

d) Structure and function of RNA- types- mRNA, rRNA and tRNA. **(14L+6T)**

Reference

1. Arumugam, Elements of Biochemistry. Saras publication. 1994.
2. Ambika Shanmugam, Fundamentals of Biochemistry. Karthik Offset Printers. 1998.
3. Bowman, Barbara A. & Russell, Robert M., Present Knowledge in Nutrition, 9th Edition, International Life Sciences Inst. Press, Washington, DC 2006.
4. Robert Murray, Victor Rodwell, David Bender, Kathleen M. Botham, P. Anthony Weil, Peter J. Kennelly, Harper's Illustrated Biochemistry, 28th Edition, LANGE Basic Science, McGraw Hill Companies, Inc. 2009.
5. Davidson S, Passmore R, Brock JF, Truswell AS (editors) : Human Nutrition and Dietetics. 6th ed. Churchill Livingstone Ltd., Edinburgh. 1975.
6. Harris LJ : Vitamins in Theory and Practice. Cambridge University. Press, Cambridge. 1965.
7. Wohl MG, Goodhart RS: Modern Nutrition in Health and Disease. Lea and Febiger, Philadelphia. 1968.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester III / Ppr.no.15 / Core - 15

FOOD PROCESSING AND PRESERVATION

Objectives **L T P C**

4 2 0 4

1. To understand the principle of food preservation.
2. To apprise students on the scientific mechanism of food preservation.
3. To introduce students to various methods of food processing like drying, and milling
4. To introduce students to methods of preserving food to prevent wastages and losses.
5. To develop skills for setting small scale industry

Unit I

Processing of Foods-I

a) Processing of cereals and pulses - Milling of wheat, rice and processing of corn and barley

b) Processing of Fruits and Vegetables - Harvesting, Bio-Chemical changes during ripening, handling and storage.

c) Processing of nuts and oil seeds

d) Processing of spices and tea, coffee and cocoa. **(14L+6T)**

Unit II

Processing of Foods-II

a. Milk and Milk products - processing methods and product preparations.
b. Processing of meat, poultry, seafood and egg. **(12L+6T)**

Unit III

Food Preservation-I

a) Aims and principles of Food preservation, Traditional Methods of Food Preservation.

b) Heat processing of Food – dehydration, pasteurization, smoking, microwave heating and canning - methods and its applications. **(14L+6T)**

Unit IV

Food Preservation-II

a) Cold processing – chilling, freezing, freeze drying - methods and its applications.

b) Chemical methods of food preservation- Preservatives, anti-oxidants, sequesterents and stabilizers **(10L+6T)**

Unit V

Food Preservation-III

a) Use of radiation technology.

b) Food concentrates - use of acid, sugar and salt - methods and its applications.

(10L+6T)

Reference

1. Dexrosier, N.W. The Technology of Food Preservation, CBS Publisher and Distributors, New Delhi. 1987.
2. .Lal and Siddappa. Fruit and Vegetable preservation. ICMR. 1986.
3. Luh and Woodroof, Commercial Vegetable Processing. The AVI Publishing Company, INC, Westport. 1975.
4. Ranganna, S. Handbook of Analysis and quality control for fruit and vegetable processing, 2nd Edn., Tata McGraw-Hill Publisher company Ltd., New Delhi. 1986.
5. Arhold Spicer.. Advances in pre concentration and dehydration of Foods. Applied Science Publishers Pvt.Ltd. 1974
6. Charm, S.E. Fundamentals of Food Engineering. The AVI Publishing Co., Connecticut. 1971.
7. Booth, I. R., Kroll, R. G. The preservation of foods by low pH. In: Mechanisms of Action of Food Preservation Procedures. Gould, G. W., Ed. Elsevier Applied Science, London. p. 119. 1989.
8. Borgstrom, G. Principles of Food Science. Macmillan, London. 1968.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester III / Ppr.no.16 / Core - 16

ADVANCED BAKING

Objectives: **L T P C**

4 1 0 4

This course will enable the students to:

1. Understand basic concepts of baking
2. Acquaint with the role of various major and minor ingredients in bakery products
3. Familiarize with baking process and operations.
4. Learn the quality parameters of bakery products.

Unit I

Bakery organization and Equipment

a. Bakery Organization- Structure, Duties and Responsibilities. Layout for Small Bakery and Bread Making Unit.
b. Equipment-Small Equipment and Large Equipment- Weighing machine, flour sifter, spiral dough mixer, vertical mixer, dough divider, bun divider and rounder, dough sheeter, deck oven, convection oven, rotary rack oven **(12L+3T)**

Unit II

Bakery Ingredients and their role

a. Wheat: hard wheat and soft wheat, composition or constituents of flour, types of flour, characteristics of good quality flour, functions of flour.
b. Sugar: types and functions of sugar in bakery products.
c. Egg: Composition and functions of egg
d. Emulsifier: Glycerol Monostearate and lecithin. **(10L+3T)**

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester III / Ppr.no.16 / Core - 16

Unit III

Yeast, fats & oils, leavening agents & salt

a. Yeast: types and composition of yeast, characteristics of yeast, role of yeast during fermentation and function of yeast.
b. Fats and Oils: types of fats- milk and animal fats and vegetable fat and functions of fat in bakery products.
c. Leavening agents: methods and functions of leavening- mechanical, chemical, biological / natural and vapour pressure.
d. Salt: functions. **(10L+3T)**

Unit IV

Bread and Cake Making Process -Yeast made products:

a. Bread: Ingredients and their function. Methods- straight dough method, salt delayed method, no dough time method, sponge and dough method and ferment and dough method.
b. Processing, characteristics of bread- internal and external characteristics.
c. Bread faults and their causes- external and internal bread faults.
d. Cake: Ingredients and their functions. Method- sugar batter method, flour batter method, blending method, boiled method, sugar water method, all in process method, foaming method. Characteristics of cake- internal and external characteristics. Cake faults and their causes- external and internal cake faults. **(15L+3T)**

Unit V

Icings, Cookies and Pastries

a. Icings: Butter cream, royal icings, almond paste, fondant icing, gum paste, American frosting, water icings/ glace icings.

b. Cookies: Difference between biscuits and cookies, method for mixing cookies, types of cookies, faults and their causes.
c. Pastries: types of pastry- short crust, puff, flaky, philoor filo, chox and Danish pastry.

(10L+3T)

Reference

1. Kent.N.L.: Technology of cereals – with special reference to wheat, pergamon Press, New York, USA. 1975.

2. France.W.J: The student Technology of Bread making and flour confectionery, Routledge and Kegan Paul Ltd., London, UK. 1974.

3. Sultan.W.J.: Practical baking manual – for students and instructors, AVI Publishing Co.INC, West Port, Connecticut. 1976.

4. Matz S.A.: Bakery Technology, packaging, nutrition, product development and quality assurance, Elsevier Science Publisher Ltd., New York, USA. 1989.

5. Malik. R.K. and Dhingra.K.C.: Technology of Bakery Industries. Small Industry Research Institute, New Delhi, India. 1981.

6. Pomeraz, Y.: Wheat Chemistry and Technology, Vol. 1 and II American Assn. of Cereal Chemists, 3rd Ed. St. Paul Minnesota, USA. 1988.

7. Matz. S.A. Technology for the Materials of Baking, Elsevier Science Publishers. Baking, England. 1989.

8. Yogambal and Ashok kumar, Theory of Bakery and Confectionary, PHT learning Private Limited, New Delhi. 2009.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester III / Ppr.no.17 / Core - 17

RESEARCH METHODOLOGY

Objectives: **L T P C**

4 1 0 4

1. Understand the methodology of research and techniques
2. Develop skills in conducting research from planning a study to report Writing
3. Apply statistical procedure to analyze numerical data draw inferences

Unit I

Methods of Research

a) Definition of research, characteristics of research, criteria of good research

b) Merits and demerits of scientific research

c) Different types of research and characteristics:

i. Historical research, Ex-post facto research, laboratory experiments, Field experiments, survey research, evaluative research, Case study research, operational research, participatory research

ii. Steps in conducting research

iii. Hypothesis: Definition, purpose, types

iv. Reporting: Methods of reporting, Technical reports

v. Research Abstract: Definition, guidelines for writing abstract

vi. Thesis: Definition, parts, steps in writing thesis **(12L+3T)**

Unit II Sampling Design

a) Census and sample survey- Steps in sampling design, Sample size and its determination

b) Types of sampling: Random Sampling, Simple random sampling, Stratified random sampling, Systematic sampling, Cluster sampling

c) Non random sampling methods:

i. Judgement sampling

ii. Convenience sampling, quota sampling

iii. Benefits of sampling

iv. Sampling errors

v. Non sampling errors **(10L+3T)**

Unit III

Methods of Data Collection and Classification

a) Methods of collecting primary data: Questionnaire, Interview, Schedule, Observation, Inventories, Checklists

b) Scaling techniques

c) Drafting of questionnaire, training of interviewers

d) Criteria for evaluation of instruments – reliability and validity

e) Sources of secondary data, precautions in the use of secondary data

f) Classification of data: types of classification

g) Formation of discrete and continuous probability distributions

h) Tabulation of data: parts of a table, general rules of tabulation, types of tables

i) Diagrammatic representation of data

j) Graphic representation of data **(10L+3T)**

Unit IV

Statistical Methods

a) Measures of central tendency: mean, median and mode, their relative advantages and disadvantages

b) Measures of dispersion: Mean deviation, standard deviation, Coefficient of variation, percentile

c) Types of correlation, coefficient of correlation and its interpretation-Rank correlation, Regression equations and predictions, Analysis of variance, Contingency tables, Chi-square test, 't' test: student's 't' test, paired 't' test, unpaired 't' test, 'F' test **(15L+3T)**

Unit V

Sampling Statistics and Introduction to Statistical Package for Social Sciences (SPSS)

a) Statistical inference and central limit theorem

b) Null hypothesis and tests of significance

c) The chi-square

d) Testing difference between mean, proportions, standard deviations and correlations.

e) Introduction to Statistical Package for Social Sciences (SPSS). **(13L+3T)**

References

1. Bailey, Kenneth D., "Methods of Social Research," New York, 1978.
2. Best, John W., and Kahn, James V., "Research in Education," 5th Ed., New Delhi: Prentice-Hall of India Pvt. Ltd., 1986.
3. Cochran, W.G., Sampling Techniques, 2nd ed. New York: John Wiley & Sons., 1963.
4. Cooley, William W., and Lohnes, Paul R., Multivariate Data Analysis, New York: John Wiley & Sons., 1971.
5. Gatner, Elliot S.M., and Cordasco, Francesco, Research and Report Writing, New York: Barnes & Noble, Inc., 1986.
6. Gaum, Carl G., Graves, Harod F., and Hoffman, Lyne, S.S., Report Writing, 3rd ed., New York: Prentice-Hall, 1980.
7. Ghosh, B.N., Scientific Methods and Social Research, New Delhi: Sterling Publishers Pvt. Ltd., 1982.
8. Kothari, C.R., Quantitative Techniques, 2nd ed., New Delhi: Vikas Publishing House Pvt. Ltd., 1984.
9. Whitney, F.L., The Elements of Research, 3rd ed., New York: Prentice-Hall, 1950.
10. Kothari, C.R., Research Methodology: Methods and Techniques, 2nd ed., New Age International (P) Ltd., Publishers. 2004.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester III / Ppr.no.18 / Practical - 5

FOOD PROCESSING AND PRESERVATION I

Objectives: **L T P C**

1 0 3 2

1. To know the causes of food spoilages.
2. To know and describe the effects of food preservation methods on the nutritional value and quality of food.
3. To identify & select processing equipment and preservation methods appropriate for specific foods.
4. To describe the effects of preservation methods on the quality of food.
    a) Refrigeration and Freezing of fruits and vegetables.
    b) Refrigeration and Freezing of meat and fish.
    c) Sun and Oven drying of Fruits and Vegetables.
    d) Preservation of foods by salt and acid-Vathal, Vadagam,
    e) Preservation by fermentation- Wine, Vinegar.
    f) Preservation of foods by sugar – Orange, Pineapple, Grape, cordial
    g) Preparation of Rosemilk
    h) Preparation of Fruit Squash- Orange, Pineapple, Grape, Mango
    i) Preparation of Crushes- Grape
    j) Preparation of Tuty Fruity (Papaya), Petha (White Pumpkin) Ginger Murabha (Ginger), Glazed fruits.

References

1. Battcock, M. Azam-Ali, S. Axtell, B. and Fellows, P. Training in Food processing: Successful Approaches. ITDG Publishing 1998. Technical Centre for Agricultural and Rural Cooperation (ACP-EU) 1998.
2. CTA. Strategies for Strengthening Small-scale Food Processing in Eastern and Southern Africa. Processing of a workshop organised by CTA, DSE, NARO and FAKT, Entebbe,

3. Uganda, November 1998. Technical Centre for Agricultural and Rural Cooperation (ACP-EU) 2000a.
4. CTA. Small-scale food processing sector in South Africa. Imani development (pvt) limited in collaboration with N. Hill, ICAP. CTA working document number 8014. Technical Centre for Agricultural and Rural Cooperation (ACP-EU) 2000b.
5. Fellows, P. J. Food Processing Technology- Principles and Practice. Wood head Publishing Limited, Cambridge England. 1988.
6. Potter, N. N. & Hotchkiss, J. H. Food Science. 5th Edition. Chapman & Hall. 1998.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester III / Ppr.no.19 / Practical - 6

ADVANCED BAKING PRACTICAL I

Objectives: **L T P C**

1 0 3 2

The students should: -.

1. To develop professional competencies among student in catering & bakery.
2. Know the history of cooking, its modern developments, raw material, basic method of cooking, equipment and menu planning.
3. To learn bakery science cake making and bread making.
4. To study the fundamentals of baking including, dough, quick breads, pies, cakes, cookies, tarts and basic items made in a bakery.

1. Preparation and cost analysis of

- Cookies
- Madeline
- Black Forest
- Puddings
- Cakes
- Bread rolls
- Danish pastry

References

1. Hughes O & Bennion. M. Introductory Foods –, second edition. The Macmillan Co. Ltd. New York. 1970.
2. Bernard Davis, Leto M.J. and Bode. Food Commodities- Heinmann Ltd. London.1975.
3. France.W.J: The student Technology of Bread making and flour confectionery, Routledge and Kegan Paul Ltd., London, UK. 1974.

4. Sultan.W.J. Practical baking manual – for students and instructors, AVI Publishing Co.INC, West Port, Connecticut. 1976:
5. Matz S.A: Bakery Technology, packaging, nutrition, product development and quality assurance, Elsevier Science Publisher Ltd., New York, USA. 1989.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.20 / Core - 20

HUMAN FACTORS AND ERGONOMICS

Objectives: **L T P C**

4 0 0 4

1. Learn to optimize the integration of man and machine so as to improve the work rate and accuracy.
2. Know how to minimize physical and mental strain on the individuals/workers there by improving the efficiency.
3. Learn to enhance performance and productivity
4. Study how to prevent fatigue and injury

UNIT- I

Introduction to Ergonomics

a) Definition, History and evolution.

b) Scope of Ergonomics in home and other occupations

c) Nature of work in household and other occupations

d) Human Body and Work: Physiology of Neuro-muscular function in relation to occupational ergonomics; Physiological factors in muscle work; Physical work capacity; Energy requirement for muscular work; Energy expenditure for different activities; Endurance and muscular strength. **(12L) UNIT- II**

Job Analysis

a) Significance of job analysis for occupational ergonomics, Fundamental elements of job analysis.

b) Anthropometry in relation to occupational ergonomics

c) Postures-Definition and Scope **(12L)**

UNIT- III

Application of Ergonomic Principles in:

a) Tool Evaluation and Design**;** Work Station Evaluation and Design; Maintenance of Postures

b) Identifying types of postures assumed during work, analysis and interpretation

(12L)

UNIT- IV

Use of instruments employed in ergonomic research.

a) Physiological tools for testing and monitoring -Blood pressure, Heart rate at rest, work and recovery period

b) Exercise ergometry- Cycle ergometer, treadmill **(12L)**

UNIT- V

Cardio-Respiratory Fitness

a) Anthropometric measurements and Physical Fitness Index

b) Body composition - Body Fat % , Body Surface Area, Lean Body Mass by Skinfold Method and Somatotyping.

c) Maximum Aerobic Capacity using modified Harvard test (Queens college test)

d) Determination of workload using Heart Rate and Oxygen Consumption- Treadmill, step stool.

i. Heart Rate and Oxygen Consumption.
ii. Pulse Rate
iii. Time and Motion Study.
iv. Physiological Cost.
v. Energy Cost.
vi. Cardiac Cost

vii. Assessment of Physical Work Capacity (PWC) **(12L)**

References

1. Ainslie, P.N., Campbell, L.T., Keith Frayn,N. Sandy M. Humphreys, Donald P. M. MacLaren, and Thomas Reilly. Physiological, metabolic, and performance implications of a prolonged hill walk: influence of energy intake. Journal of Applied Physiology. Vol. 94 no. 3, 1075-1083. 2003.
2. Astrand P. O. and Rodahl K. Textbook of Work Physiology. 3rd edn. p. 281.
3. Barasi, M.E. 2003. Human Nutrition: A Health Perspective, Second Edition. Taylor and Francis Group. CRC Press. 1986
4. Binisam. Ergonomic Evaluation of Paddy Harvester and Thresher with Farm Women International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Impact Factor (2012): 8 (3)11. 2014.
5. Bridger, R.S. Introduction to Ergonomics. London: Taylor and Francis. 2003.
6. Chatterjee, S., Chatterjee, P., Mukherjee, P.S. and Bandyopadhyay, A. Validity of Queen's College step test to use with young Indian men. British Journal of Sports Medicine, 38. 2004.
7. Corlett,E.N. and Bishop, R.P.A., A technique for Assessing Postural Discomfort, Ergonomics, 1976.
8. Dabholkar T A, Priyanka Nakhawa, and Sujata Yardi. Common Musculoskeletal problem experienced by fishing industry workers. Indian J Occup Environ Med. 2014 May-Aug; 18(2): 48–51.
9. Das S.K., Mahapatra S. — Determination of physical fitness index (PFI) with modified Harvard Step Test (HST) in young men and women. Ind J Physiol and Allied Sci. Vol 47(2): 73-75, 1993.
10. Gallagher, D. and Javed, F. Assessment of human body composition, Handbook of assessment methods of eating behaviours and weight-related problems. Second edition, Allison, D.B. and Baskin, M.L. (eds), SAGE Publications Inc. USA. 2009.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.21 / Core - 21

FOOD QUALITY CONTROL

Objectives: **L T P C**

4 0 0 4

This course aims to :

1.Provide adequate theoretical background and understanding about sensory evaluation of food.

2.Enable students to use various sensory methods for evaluation variety of foods.

3.Enable students to analyse and interpret sensory evaluation data.

Unit I

Evaluation of Food Quality

a. General principles of quality control – quality attributes - size, shape, colour, consistency, viscosity, texture, taste and flavour.

b. Methods of evaluation of food quality – sensory, objective technique, micro biological methods of quality evaluation.

c. General testing conditions – quantitative difference tests – designing of questionnaire (or) evaluation of score card. **(13L)**

Unit II

Food and Environmental Contaminants

a. Food contaminants: Naturally occurring toxicants, anti-nutritional factors in foods.

b. Environmental contaminants: Biological contaminants, Pesticide residues, veterinary drug residues and heavy metals. **(13L)**

Unit III

Food Additives

a. Direct Additive: Preservatives, Nitrate, Nitrite, and N-nitroso compounds.

b. Indirect Additives, Anti-microbial and veterinary drugs, pesticides, polyhalogenated aromatic hydrocarbons, polycyclic aromatic hydrocarbons.

c. Other organic residues, packing materials, heavy metals, Radio nuclides in foods. **(13L)**

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.21 / Core - 21

Unit IV

Food Adulterants and Standards

a. Common adulterants – tests to detect adulterants.
b. Government and trade standards for quality – food laws and regulations – PFA, FPO and APEDA- BIS standards – Agmark standard – International Standards for export.
c. HACCP – Food safety system. **(10L)**

Unit V

Laws and Regulations

Laws and regulations for setting up a processing unit. **(10L)**

Reference

1. Giridarilal Sidappa, G.S., and Tandon, G.L. Preservation of fruits and vegetables, ICAR, New Delhi. 1979

2. Riswadkar, A.V., An introduction to HACCP: the hazard analysis and critical control point system for food processors, Food Safety, Elsevier Applied Science Publisher, New York. 2000.

3. Kulp, K.; Ponte, J. G. Handbook of Cereal Science and Technology. 2nd edn. New York, Marcel Dekker. 2000.

4. Horace, D.Graham, 1980, The Safety of Foods, 2nd End, AVI publishing Co.Inc, Westport.

5. Julie Miller Jones, 1992, Food Safety, Eagan Press, USA.

6. Lewis M.J. 1987, Physical properties of food and processing system, Ellis Harwood Ltd., England.

7. Picgott, J.R, 1984, Sensory Analysis of Foods, Elsevier Applied Science Publisher, New York.

8. Food and Drug Administration (FDA). Thermally processed low-acid foods packaged in hermetically sealed containers. Title 21, Code of Federal Regulations, part 113. U.S. Government Printing Office, Washington, D.C. 1992.

9. Food and Drug Administration (FDA), Acidified foods. Title 21, Code of Federal Regulations, part 114. U.S. Government Printing Office, Washington, D.C. 1992.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.22 / Core - 22

NUTRITION FOR FITNESS

Objectives: **L T P C**

4 0 0 4

1. To learn various asanas for the well-being of sound health
2. To understand the types and role of meditation

Unit I

Introduction to Yoga

Yoga- Meaning, Aims and objectives, significance. **(10L)**

Unit II

Asanas

a) Systems of Yoga - Eight limbs of yoga.
b) Asanas - Classification, difference between physical exercise and yogic exercise
c) Guidelines for practicing Asanas. **(14L)**

Unit III

Meditation

Meditation - Meaning, types, role **(14L)**

Unit IV

Body Care

a. Facial and body - fruit and vegetables, Electrical treatment
b. Machinery and technology - figure analysis - recommended treatment eg : muscle toning, fat elimination, relaxation and detoxification. **(12L)**

Unit V

Treatment for Fitness

a. Exercise and Weight control - fundamentals of aerobics
b. Nutrition guidance on balanced eating and nutritional advice to clients for obesity, skin nourishment, hair treatment. **(10L)**

References

1. Cotton R. Lifestyle and Weight Management Consultant Manual. San Diego, CA; American Council on Exercise. 1996

2. Cox. L. Seaworthy. Women's Sports and Fitness July-August 1995;

3. Howley E. and BD. Franks, Health and Fitness Instructor's Handbook, 2nd ed.Champaign, IL: Human Kinetics, 1992.

4. Institute of Medicine. Assessing Military Readiness in Women: The Relationship Between Body Composition, Nutrition, and Health. Washington, D.C.: National Academy Press, 1998.

5. Kirkenall DT. and WE. Garrett, Jr. The Effects of Aging and Training on Skeletal Muscle. American Journal of Sports Medicine 1998;

6. Koch. F. Strength Training for Sports; Applied FuturisticsSM, 1994. SJ. Montain, WA. Latzka, and MN Sawka. Fluid Replacement Recommendations for Training in Hot Weather. Military Medicine 1999;

7. Shephard. RJ. Aging and Exercise. In: Encyclopedia of Sports Medicine and Science, TD. Fahey (Ed.) Internet Society for Sport Science: 1998.

8. Sudy. M. Personal Trainer Manual: The Resource for Fitness Instructors. Boston: Reebok University Press, 1993.

9. Tufts University Health & Nutrition Letter. Outpacing Middle-Age Spread: Running. 1998.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.23 / Practical - 7

FOOD PROCESSING AND PRESERVATION II

Objectives: **L T P C**

1 0 3 2

1. To know the causes of food spoilages
2. To know and describe the effects of food preservation methods on the nutritional value and quality of food
3. To identify & select processing equipment and preservation methods appropriate for specific foods
4. To describe the effects of preservation methods on the quality of food.

Practical

1. Preparation of Jam –Apple, Pineapple, Mixed Fruit
2. Preparation of Jelly – Guava, Mixed Fruit
3. Preparation of Fruit cheese
4. Preparation of Cocktails
5. Preparation of Marmalade
6. Preparation of Tomato ketchup
7. Preparation of Pickles-Lemon, Mango, Mixed vegetable, Garlic.
8. Visit to Canning and Bottling unit.
9. Visit to fish processing unit.
10. Visit to a food packaging unit.

References

1. Giridarilal Sidappa, G.S., and Tandon, G.L. Preservation of fruits and vegetables, ICAR, New Delhi. 1979

2. Riswadkar, A.V., An introduction to HACCP: the hazard analysis and critical control point system for food processors, Food Safety, Elsevier Applied Science Publisher, New York. 2000.

3. Kulp, K.; Ponte, J. G. Handbook of Cereal Science and Technology. 2nd edn. New York, Marcel Dekker. 2000.

4. Horace, D.Graham, 1980, the safety of foods, 2nd End, AVI publishing Co.Inc, Westport.

5. Potter, N. N. & Hotchkiss, J. H. 1998. Food Science. 5th Edition. Chapman & Hall Preparation of Fruit bars

6. Lewis M.J. 1987, Physical properties of food and processing system, Ellis Harwood Ltd., England.

7. Picgott, J.R, 1984, Sensory Analysis of Foods, Elsevier Applied Science Publisher, New York.

8. Food and Drug Administration (FDA). Thermally processed low-acid foods packaged in hermetically sealed containers. Title 21, Code of Federal Regulations, part 113. U.S. Government Printing Office, Washington, D.C. 1992.

9. Food and Drug Administration (FDA), Acidified foods. Title 21, Code of Federal Regulations, part 114. U.S. Government Printing Office, Washington, D.C. 1992.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.24 / Practical - 8

ADVANCED BAKING PRACTICAL II

Objectives: **L T P C**

1 0 3 2

The students should: -.

1. To develop professional competencies among student in catering & bakery.
2. Know the history of cooking, its modern developments, raw material, basic method of cooking, equipment and menu planning.
3. To learn bakery science cake making and bread making.
4. To study the fundamentals of baking including, dough, quick breads, pies, cakes, cookies, tarts and basic items made in a bakery.

1. Preparation and cost analysis of

- Biscuits
- Nankhatai
- Melting moments
- Puffs
- Bread and Rusk
- Madeline

2. Determination of gluten content

3. Physical characteristics of bakery products

4. Fifteen days training in baking.

References

1. Hughes O & Bennion. M. Introductory Foods –, second edition. The Macmillan Co. Ltd. New York. 1970.
2. Bernard Davis, Leto M.J. and Bode. Food Commodities- Heinmann Ltd. London.1975.

3. France.W.J: The student Technology of Bread making and flour confectionery, Routledge and Kegan Paul Ltd., London, UK. 1974.
4. Sultan.W.J. Practical baking manual – for students and instructors, AVI Publishing Co.INC, West Port, Connecticut. 1976.
5. Matz S.A: Bakery Technology, Packaging, Nutrition, Product Development and Quality Assurance, Elsevier Science Publisher Ltd., New York, USA. 1989.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.25 / Elective - 1

***Field work/ **study tour- report**	**L**	**T**	**P**	**C**
	0	**0**	**3+**	**3**

***** Students are likely to attend their fieldwork locations and complete assignments as listed on Assignments Due Date according to the schedule directed by the department.

**A study tour is a credit-bearing course in which the majority of the academic work is accomplished through group study and travel outside the campus. A summary of the study tour will be submitted to the department.

MSU/ 2017-18/ PG -Colleges / M.Sc. (Dietetics and Food Management) / Semester IV / Ppr.no.26 / Project

Individual Project & Viva-voce	**L**	**T**	**P**	**C**
	0	**0**	**7+**	**8**

Students are encouraged to work on Individual Project to get acquaintance to real life problem solving and hands -on experience. The outcomes of the projects would be submitted as report and viva voce shall be conducted for student individually.