

Akkamahadevi Women's University, Vijayapura

M.Sc. Food Processing and Nutrition Choice Based Credit System (CBCS) syllabus

CORE SUBJECT: FOOD PROCESSING AND NUTRITION (Post Graduate)

Sl. No.	Paper code	Subject	Credits			Total	Marks for		
			L	T	P		Exam	Internal Assignments	Total
Semester I									
1.	HCT - FPN 1.1	Principles of Food Science	04	00	00	04	70	30	100
2.	HCT - FPN 1.2	Principles of Human Nutrition	04	00	00	04	70	30	100
3.	HCT - FPN 1.3	Food Microbiology	04	00	00	04	70	30	100
4.	SCT - FPN 1.4	1.4.1 Research Methodology and Applied Statistics (optional) 1.4.2 Food Hygiene and Sanitation (optional) 1.4.3 Food Biotechnology (optional)	04	00	00	04	70	30	100
5.	HCP - FPN 1.5	Practical based on FPN 1.1	00	00	02	02	35	15	50
6.	HCP - FPN 1.6	Practical based on FPN 1.2	00	00	02	02	35	15	50
7.	HCP - FPN 1.7	Practical based on FPN 1.3	00	00	02	02	35	15	50
8.	SCP - FPN 1.8	Based on the SCT – 1.4.1/ 1.4.2/1.4.3	00	00	02	02	35	15	50
9.	OE - 1.9	Offered by Dept. of Women's Studies	04	00	00	04	70	30	100
	Total		19	01	08	28	490	210	700
Semester II									
1.	HCT - FPN 2.1	Principles of Human Physiology	04	00	00	04	70	30	100
2.	HCT – FPN 2.2	Food Processing - I	04	00	00	04	70	30	100
3.	HCT – FPN 2.3	Food Analysis	02	00	00	02	70	30	100
4.	SCT – FPN 2.4	2.4.1 Food Product Development (optional) 2.4.2 Implant training (optional) 2.4.3 Quality Control in Food Industries (optional)	01	01	00	02	70	30	100
5.	HCP – FPN 2.5	Practical based on FPN 2.1	00	00	02	02	35	15	50
6.	HCP – FPN 2.6	Practical based on FPN 2.2	00	00	02	02	35	15	50
7.	HCP – FPN 2.7	Practical based on FPN 2.3	00	00	04	04	35	15	50
8.	SCP – FPN 2.8	Based on the SCT – 2.4.1/ 2.4.2/2.4.3	00	00	04	04	35	15	50
9.	OE – 2.9	Offered by Dept. of Women's Studies	04	00	00	04	70	30	100
	Total		15	01	12	28	490	210	700

1ST SEMESTER

FPN: 1.1 - PRINCIPLES OF FOOD SCIENCE

52 Hours

UNIT-I

13 hrs

Introduction to food science, colloidal chemistry related to foods, carbohydrates in food sources and characteristics of sugars, starch, cellulose, pectin and gums in foods. Effect of cooking and processing techniques

UNIT-II

12 Hours

Protein in foods: Plants and animal foods. Chemical and physical properties, effect of cooking and processing techniques

UNIT-III

15 Hours

Properties, uses, processing techniques, changes during heating and other processing and storage of fats and oils. Classification, importance, composition of foods and vegetables and effect of cooking and other processing on their nutritive value

Unit-IV

12 Hours

Classification and importance of beverages and food pigments, browning reactions; definition, classification, uses and legal aspects of food additives; Classification and nature of leavening agents

Practical:

Microscopic structure of different starch granules; Colloidal properties of foods, Evaluation of gluten content of wheat flours in relation to their suitability for the preparation of chapattis and bread; changes in color, texture and flavor of foods due to processing; Effect of cooking on protein, fat and carbohydrates. Product preparation using leavening agents and testing of food additives.

REFERENCES

1. Srilakshmi, B. (2018), Food Science (7th Edition), New Age International (P) Limited, New Delhi.
2. Shakuntala Manay, N. and Shadaksharaswamy, M. Foods: Facts and Principles (3rd Edition).
3. Charley, H. (1982), Food Science (2nd edition), John Wiley & Sons, New York.
4. Potter, N. and Hotchkiss, J.H. (1996): Food Science, Fifth edition CBS Publishers and Distributors, New Delhi.
5. Belitz, H. D. and Grosch, W. (1999) Food Chemistry, (2nd edition), Springer, New York.

FPN: 1.2 - PRINCIPLES OF HUMAN NUTRITION**52 Hours****UNIT I:****08 Hours**

Functions, sources, requirements, digestion and absorption of carbohydrates, definition, composition, classification, functions and role of dietary fibre in various physiological disorders.

UNIT II:**15 Hours**

Basis of requirements, functions, sources, digestion and absorption of proteins, methods of assessing protein quality. Basis of requirements, functions, sources, digestion, absorption and deficiency disorders of lipids, essential fatty acids.

UNIT III:**15 Hours**

Requirements, functions, sources, deficiencies and toxicities of fat and water soluble vitamins.

UNIT IV:**14 Hours**

Requirements, functions, sources, deficiencies, toxicity and factors affecting absorption and utilization of macro and micro minerals. Water balance, acid-base balance.

Practical:

1. Conducting energy and nitrogen balance study.
2. Assessment of vitamin and mineral status
 - i. Folic acid - Serum analysis
 - ii. Vitamin A &E - Serum analysis
 - iii. Iron - Serum iron, total iron binding capacity, packed cell volume
 - iv. Copper - Serum copper, ceruloplasmin
 - v. Calcium & Magnesium - Serum calcium and magnesium
3. Bioassays for the assessment of availability of β -carotene, iron, zinc, calcium

REFERENCES

1. Catherine Geissler and Hilary Powers, 2010, Human Nutrition, Churchill Livingstone.
2. Denis Medeiros and Robert Wildman, 2011, Advanced Human Nutrition, Jones and Bartlett Publishers.
3. Sareen S Gropper and Jack L. Smith, 2012, Advanced Nutrition and Human Metabolism, Cengage Learning Publishing Ltd.
4. Martha H. Stipanuk and Marie A. Caudil, 2013, Biochemical, Physiological and Molecular Aspects of Human Nutrition, Saunders Publication.
5. Nandal Urvanshi, 2013, A Handbook of Foods and Nutritional Biochemistry, AGROBIOS (INDIA) Publisher.
6. Mahtab S. Bamji, Kamala Krishnaswamy and G. N. V. Brahmam, 2016, Textbook of Human Nutrition, Oxford and IBH Publisher.
7. B. Srilakshmi, 2018, Nutrition Science, New Age International Publication.

FPN: 1.3 - FOOD MICROBIOLOGY

52 Hours

THEORY

Unit-I: Introduction

4 Hours

Introduction and scope, Definition, concepts and scope. Food as substrates for microbes. Role of intrinsic and extrinsic parameters that affect microbial growth in foods.

Unit-II: Microorganisms:

18 Hours

Morphology, general cytology and reproduction of bacteria, yeast, fungi actinomycets and algae. Viruses; structure and replication with particular reference to food borne viruses. Growth and destruction of microorganisms, growth curves and methods of measuring microbial growth. Physical, chemical and biological factors influencing the destruction of microorganisms including the concept of Z, F & D values. Microorganisms in natural products and their control.

Unit-III: Food Preservation

15 Hours

General principles of food preservation. Microbiology of atmosphere, water, milk and milk products; cereals and cereal products; fruits, vegetables and their products; meat and meat products; fish and fish products; poultry and eggs; sugars and sugar products, spice and salt canned foods. Food hygiene and sanitation, food poisoning; food borne infections, food borne intoxications and mycotoxins. Methods of food preservation: chemical, irradiation, low temperature, high temperature, drying.

Unit IV

15 Hours

- A) Food Fermentation:** Bread, cheese, vinegar, fermented vegetables, fermented dairy products; Experimental and Industrial production methods; Oriental fermented foods, their quality standards and control.
- B) Food produced by Microbes:** Microbial cell as food (Single cell proteins) – Mushroom cultivation. Bioconversions – production of alcohol fermented beverages – beer and wine. Genetically modified foods.
- C) Microbial indicators of food safety and quality control:** principles of quality control and microbiological criteria; indicators of product quality and microbiological safety of foods, hazard analysis, critical control points (HACCP), Good Manufacturing Practices (GMP), Microbiological standards, Codex Alimentarius and Food legislation.

Practical:

1. Preparation of common laboratory media and special media for cultivation of bacteria, yeast & molds.
2. Staining of Bacteria: Gram's staining, acid-fast, spore, capsule and flagellar staining, Motility of bacteria, Staining of yeast and molds.
3. Cultivation and Identification of important molds and yeast (slides and mold culture).
4. Study of environment around us as sources of transmission of microorganisms in foods. Assessment of surface sanitation of food preparation using swab and rinse techniques.
5. Isolation of microorganisms: Different methods and maintenance of culture of microorganisms.
6. Bacteriological analysis of Foods: Both processed and unprocessed foods like vegetables and fruits, cereals, spices and canned foods, using conventional methods, yeast and mold count in foods.
7. Bacteriological analysis of water and milk, total count, MPN Coliform and MRBA etc.

REFERENCES

1. Anantanarayan R., and Jayaram Paniker C.K., Textbook of Microbiology, Orient Lognman Pvt. Ltd., Hyderabad, 2005.
2. Doyle P. Michael, Beuchat R. L. and Montiville J.T. Food Microbiology-Fundamentals & Frontiers, ASM Press, Washington D.C.,2001.
3. Talaco K and Talaco A., Foundations in Microbiology, WCB publications, USA, 1993.
4. Steinkrans, K. H., (1996), Hand book of indigenous fermented foods, 2nd ed., Marcel Dekker, Inc, New York.
5. Pelezar, M. L. and Reid, R. D. (1993) Microbiology, McGraw Hill book Company, New York. 5th Edition.
6. Atlas, M. Ronald, (1995), Principles of Microbiology, 1st Edition, Mosby-Year Book, Inc., Missouri, U.S.A.
7. Topley and Wilson's (1983) Principles of Bacteriology, Virology and Immunity, Edited by S.G. Wilson, A Miles and M.T. Parker, Vol. I: General Microbiology and Immunity, II: Systematic Bacteriology. 7th Edition, Edward, Arnold Publisher.
8. Block, J. G. (1999), Microbiology Principles and Explorations, 4th Edition Hohn Wiley and Sone Inc.
9. Frazier, W. C. (1988) Food Microbiology, Mc Graw Hill Inc. 4th Edition.
10. Jay, James, m. (2000) Modern Food Microbiology, 6th Edition. Aspen publishers, Inc., Maryland.
11. Banwart, G. (1989) Basic Food Microbiology, 2nd Edition, CBS Publisher.
12. Garbutt, J. (1997) Essentials of Food Microbiology, 1st Edition, Arnold International students Edition.
13. Doyle, P. Benehat, L.R. and Mantville, T.J. (1997): Food Microbiology, Fundamentals and Frontiers, ASM Press, Washington DC.
14. Adams, M.R and M.G. Moss (1995) Food Microbiology, 1st Edition, New Age international (P) Ltd.

FPN: 1.4.1 - RESEARCH METHODOLOGY AND APPLIED STATISTICS (52 Hours)

Unit I

08 Hours

Research Methodology: Meaning, objectives and significance of research. Types of research, research approaches and scientific methods. Research process and criteria of good research

Definition and identification of research problems: Selection of research problems, justification, development of hypothesis, basic assumptions. Limitations and delimitation of the problem.

Unit II

15 Hours

Research design: meaning and needs, features of good design, important concepts relating to research design, variables, experimental and control groups. Different research designs – exploratory, descriptive and diagnostic. Pilot studies, qualitative versus quantitative research.

Sampling design: population and sample, steps in sampling design, criteria for selecting sampling procedure, different types of sampling techniques – probability sampling and non-probability sampling. Merits and demerits of sampling. Power analysis and sample size calculation in experimental design

Unit III

15 Hours

Methods of data collection: schedules and questionnaire, interview, case study, home visits, scaling methods, variability and validity of measuring instruments.

Statistical issues: effect of measures – formulation of hypothesis and testing of hypothesis, confidence level and Bayesian statistics. Concepts and characteristics of normal distribution.

Basic principles and regulations in Human and animal research

Unit IV

14 Hours

Analysis and reporting of data – Graphical and diagrammatic representation, measures of central tendencies (Mean, Median and Mode), measures of dispersion (Range, Mean Deviation and Standard Deviation) and their relative measures. Qualitative and quantitative methods of data analysis.

Interpretation – meaning, techniques and precautions of interpretation; Interpretation of tables and figures

Report Writing: Significance of report writing, different steps in writing report, types of reports, mechanics of writing reports and precautions to be taken while writing research reports.

Practical:

No.	Topics and Details
1	Differentiate between investigative reporting and research report (with examples to be brought by students as exercise)
2	Differentiate between (a) basic and applied research (Exercise to be based on actual research papers published in accredited journals) (b) Qualitative and quantitative research.
3	Multidisciplinary nature of Home Science - grounding of Home Science disciplines in various sciences and/of specializations(Exercise: students to identify 3 multidisciplinary topics with case discussion)
4	Types of variables, Hypothesis formations and research questions from Research readings-students identify hypothesis/research questions-Discussion.
5	Based on journal contents, discuss types of Research with examples
6	Students to brainstorm on areas/topics for Research in each of the focal areas of their specialization.
7	Construction of tools for data collection (a) types of questions (b) Questionnaire (C) interview schedule (d) observation (e) scales.
8	For a given topic, students to frame and discuss the different possibilities of methods and tools.
9	Students to design a research study on a topic- specify type of research, sample selection, protocol/operationalization, tools, tests for statistical analysis
10	Sample distribution and probability
11	Sampling
12	Data Management and Analysis, Frequency distributions, Measures of central tendency, measures of dispersion, variability.

REFERENCES

1. Chand Ramesh, Research Methodology and Techniques in Food, Nutrition and Dietetics, Anmol Publication
2. C. R. Kothari, Research Methodology: Methods and Techniques, New Age International Publishers.
3. Morrison, Donald F., 1990, Multivariate Statistical Methods, New York McGraw-Hill
4. Are Hugo pripp, 2013, Statistics in Food Science and Nutrition, Springer New York.

FPN 1.4.2 – FOOD HYGIENE AND SANITATION (52 Hours)

Unit I

10 Hours

General principles of food hygiene, hygiene in rural and urban areas in relation to food preparation, personal hygiene and food handling habits. Place of sanitation in food plants, sanitary aspects of building and equipment – plant layout and design.

Unit II

15 Hours

- A.** Safe and effective insect and pest control – extraneous materials in foods, principles of insects and pest control
- B.** physical and chemical control. Effective control of microorganisms: important in food sanitation, microorganisms as indicator of sanitary quality.

Unit III

12 Hours

Sanitary aspects of water supply: source of water, quality of water, water supply and its uses in food industries. Purification and disinfection of water preventing contamination of portable water supply.

Unit IV

15 Hours

- A.** Effective detergency and cleaning practices: importance of cleaning technology, physical and chemical practices in cleaning, classification and formulation of detergents and sanitizers, cleaning practices
- B.** Sanitary aspects of waste disposal, establishing and maintaining sanitary practices in food plants, role of sanitation, general sanitary consideration and sanitary evaluation of food plants

REFERENCES

1. Norman G. Mariott and Robert B Gravani, 2006, Principles of Food Sanitation (5th Edition), Springer Publisher.
2. Sunetra Roday, 2011, Food hygiene and Sanitation with Case Studies (2nd Edition), Tata McGraw Hill Education Pvt. Ltd.
3. Debby Newslow, 2013, Food Safety Management Programs: Applications, Best Practices and Compliance (1st Edition). CRC Press Publication.
4. Yasmine Motarjemi and Huub Lelieveld Dr., 2014, Food Safety Management: A Practical Guide for the Food Industry. Academic Press Ltd.
5. H L M Lelieveld and John Holah, 2018, Hygiene in Food Processing: Principles and Practice (2nd Edition), Woodhead Publishing Ltd.
6. M. K. Mukundan, 2016, Food Safety for Food Business Operators: Food Safety HACCP.

FPN 1.4.3 – FOOD BIOTECHNOLOGY (52 Hours)

Unit I **12 Hours**

- A.** Use of Biotechnology for food processing
- B.** Indian fermented foods – historical perspective, mechanism of fermentation, effect on nutritional value

Unit II **15 Hours**

Genetically modified foods – Need of GM foods – the food challenges, potential benefits in agriculture, crop engineered for input and output traits, nutritional improvement, animal foods, issues of concern – safety of GM foods.

Unit III **10 Hours**

Technology of production of alcoholic beverages

Unit IV **15 Hours**

- A.** Fermented cereal and legume based products, traditional and yeast leavened products.
- B.** Fermentation of vegetables and fruits – lactic acid fermentation
- C.** Fermented milk products – yoghurt, butter milk, cheese
- D.** Fermentation of meat and fish

REFERENCES

1. Gustavo F. Gutierrez-Lopez, 2003, Food Science and Food Biotechnology. CRC Press.
2. Kalidas Shetty, Gopinadhan Paliyath, Anthony Pometto and Robert E. Levin, 2005, Food Biotechnology (2nd Edition). CRC Press.
3. Sinosh Skariyachan and Abhilash M., 2012, Introduction to Food Biotechnology (1st Edition), CBS Publication.
4. V. K. Joshi and R. S. Singh, 2013, Food Biotechnology: principles and Practices, I.K. International Publishing House Ltd.
5. Ravishankar Rai V., 2015, Advances in Food Biotechnology (1st Edition), Wiley-Blackwell.
6. S. C. Bhatiya, 2016, Food Biotechnology, CRC Press.

II SEMESTER

FSN: 2.1 - PRINCIPLES OF HUMAN PHYSIOLOGY

52 Hours

THEORY

Unit I

12 Hours

Reticulo-endothelial system: functions, classification. Lymphatic system: functions, circulation. Circulatory System: blood – composition, blood cells - development and function of blood cells, blood clotting, blood grouping and hemoglobin.

Unit II

10 Hours

Heart: anatomy, cardiac cycle, blood pressure and factors affecting blood pressure. Respiratory system: anatomy, physiology and mechanism of respiration, regulation of respiration.

Unit III

15 Hours

Digestive system: anatomy of gastrointestinal tract and accessory organs. Digestion and absorption of food, regulation of appetite. Excretory system: anatomy and functions of kidney, formation, composition and excretion of urine.

Unit IV

15 Hours

Endocrine glands: mode of action of hormones. Reproductive system: Structure and functions of male and reproductive organs. Nervous system: anatomy and functions, musculo-skeletal system, anatomy and functions.

Practical

Estimation of hemoglobin. Identification of blood groups. Preparation of blood slide, identification and counting of blood cells. Haematocrit and sedimentation rate. Measurement of blood pressure. Examination of abnormal constituents of urine. Estimation of glucose and cholesterol in blood.

REFERENCES

1. Susannah N. Longenbaker, 2007, Mader's Understanding Human Anatomy and Physiology (6th Edition). McGraw Hill Higher Education.
2. Indu Khurana, 2018, Concise Textbook of Human Physiology (3rd Edition). Elsevier India.
3. Waugh, 2014, Ross and Wilson Anatomy and Physiology in Health and Illness (12th Edition). Elsevier Health, UK.
4. Vidya Ratan, 2004, Handbook of Human Physiology (7th edition), Jaypee Brothers Medical Publisher.

FPN: 2.2 - FOOD PROCESSING - I**52 Hours****Theory****Unit I:****12 Hours**

Principles underlying food processing operations including thermal, radiation, refrigeration, freezing and dehydration. Effect of processing on physicochemical characteristics.

Unit II:**20 Hours**

Structure and composition of common cereals, pulses and oilseeds; Processing technology for preservation and production of variety food products, losses during storage, handling and processing of cereals and legumes, oilseeds.

Unit III:**10 hours**

Technologies underlying in mutual supplementation, enrichment and fortification, fermentation, malting and germination.

Unit IV:**10 Hours**

Quality control in food industry: raw material, finished products. Processing technologies for convenience and processed foods.

Practical:

Introduction to food processing methods; Thermal processing of foods – Dehydration of foods; Evaluation of pectin grade; milling of wheat and rice by laboratory mill; parboiling of rice; preparation of various snack food based on cereals, pulses and oilseeds; development of instant food mixes; Visits to various food processing plants

REFERENCES

1. Gould, G. W (1995), New Methods of food Preservation, Blackie Academic and Professional, London.
2. Connor, J. M. and Schick W. A. (1997), Food processing: An Industrial Powerhouse in Transition. John Wiley and sons, New York.
3. Arthey, D and Ashurst, P. R. (1986) Fruit processing, Blackie Academic and Professional, London.
4. Von Loesecke, H. W (1998), Food technology: Principles and practice second Edition, CRC Woodhead Publishing Ltd., Cambridge. Fellow, P. J. (2000), Food processing Technology:

FPN: 2.3 - FOOD ANALYSIS **52 Hrs**

Unit-1: Standard solutions **15 Hrs**

Familiarization to terms and calculations used in preparation of various standard solutions.

Unit-2: Instrument Methods of analysis **15 Hrs**

Sample and sampling techniques, principles, techniques and applications of colorimetric, spectrophotometer and atomic absorption spectrophotometer, fluorimetry, flame photometry, electrophoresis and different methods of chromatography.

Unit-3: Introduction to animal assay **22 Hrs**

Techniques in separation of bimolecular and tracer techniques in biology – radioactivity.

Practical

Handling of equipment and instruments; preparation of samples, solutions and buffers; quantitative estimation of proximate principles, minerals and vitamins and important cell constituents by use of colorimeter, spectrophotometer, flame photometry, UV spectrophotometer, different methods of chromatography, techniques in fractionation of proteins.

REFERENCES

1. AOAC, 1995, Association of Official Analytical Chemist. Washington, DC. Gruenwedels, D.W. and Whitakor, J.R., 1984, Food Analysis: Principles and Techniques Vols. 1-8.
2. Marcel Dekker., Joslyn, M.A., 1970, Methods in Food Analysis: Physical, Chemical and instrumental methods of analysis.
3. Academic press.
4. Pomeranz, Y. and Molean, C.E., 1997, Food Analysis Theory and Practice. AVI Publ. Sawhney, S.K. and Singh. R., 2000, Introductory Practical Biochemistry. Narosa.

FPN: 2.4.1 – FOOD PRODUCT DEVELOPMENT

52 Hours

Theory

Unit I

15 Hours

Basic principles of food product development. Sensory properties of food and their role in product development. Formulation and evaluation of recipes at laboratory level.

Unit II

15 Hours

Bulk food preparation for food institutions and enterprises: servings, nutritive value and costing. Evaluation of food: objective and subjective method, selection and training of judges, development of score card and analysis of data.

Unit III

10 Hours

Consumer evaluation: development of schedule and data analysis. Packaging material, types for different products. Food labeling.

Unit IV

12 Hours

Food safety issues in food product development, food quality regulations and standards, quality control in HACCP. Product formation and development for general and therapeutic use.

Practical

Market survey of food products; Selection and modification of food product to be developed, formulation and standardization of products; Objective and subjective evaluation of the product; Evaluation of consumer acceptability; Packaging and Marketing of products. Project preparation and Report writing.

REFERENCES

1. Gordon W. Fuller, 1994, New Food Product Development: From Concept to Marketplace, CRC Press.
2. Mary Earle, Richard Earle and A. Anderson, 2001, Food Product Development, Woodhead Publishing Pvt. Ltd.
3. Hal Macfie, 2007, Consumer-led food product development (1st edition), Woodhead Publishing.
4. Jim Smith and Edward Charter, 2010, Functional Food Product Development. Wiley-Blackwell Publishing House.

FPN: 2.4.2 – Implant training

Students are required to undertake the implant training during the second semester and are placed to food industries/research institutions/hospitals for a period of three weeks.

FPN: 2.4.3 – Quality Control in Food Industries

52 Hours

Theory

Unit I

15 Hours

Concept of Quality: Quality attributes – physical, chemical, nutritional, microbial and sensory. Quality control in food industry: concepts of quality management: objectives, importance and functions of quality control; Principles of quality control.

Unit II

15 Hours

Quality management systems in India; sampling procedures and plans; Food Safety and Standards Act, 2006; Domestic regulations; Global Food Safety Initiative; Various organizations dealing with inspection, traceability and authentication, certification and quality assurance (PFA, FPO, MPO, AGMARK, BIS); Labeling issues; International food standards.

Unit III

08 Hours

Use of hazard analysis and critical control points in processing of foods.

Unit IV

14 Hours

Quality assurance, Total Quality Management; GMP/GHP, GLP, GAP; Sanitary and Hygiene practices; Quality manuals, Documentation and Audits; Indian and International Quality Systems and Standards like ISO and Food codex; Export and Import policy, export documentation; Laboratory quality procedures and assessment of laboratory performance; Applications in different food industries.

REFERENCES

1. Inteaz Alli, 2003, Food Quality Assurance: Principles and Practices. CRC Press.
2. Mark Clute, 2008, Food Industry Quality Control Systems (1st Edition), CRC Press
3. Pieternel A. Luning and Willem J. Marcelis, 2009, Food Quality Management: Technological and Managerial principles and practices. Wageningen Academic Publishers.
4. Amihud Kramer and Bernard A. Twigg, Quality Control for the Food Industry: Fundamentals v. 1 (3rd Revised Edition), AVI Publishing Co Inc.