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FACULTY OF MEDICINE II STUDY PROGRAM DEPARTMENT OF GENERAL HYGIENE

APPROVED

at the meeting of the Commission for quality assurance
and curriculum evaluation Faculty of Medicine II
Protocol No. ___ of _____

Chairman _____
(didactic rank, scientific title)

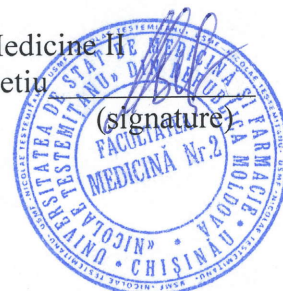
Name, surname _____
(signature)

APPROVED

at the meeting of the Faculty Council of
Medicine II
Protocol No. ___ of _____

Dean of the Faculty of Medicine II
PhD, professor Mircea Betin

(signature)



APPROVED

at the meeting of the department of General Hygiene
Protocol No. 54 of 26.09.2017

Head of the chair, of General Hygiene
PhD, professor Bahnarel Ion [Signature]
(signature)

SYLLABUS (ANALYTICAL PROGRAM) DISCIPLINE GENERAL HYGIENE

Integrated studiesType of course: **Compulsory**

Chisinau 2017



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I. PRELIMINARY

- **General presentation of the discipline: the place and role of the discipline in the formation of the specific competences of the vocational / specialty training program**

Hygiene is a prophylactic medical science that primarily aims at promoting and improving the health of the individual and human collectives in relation with environment.

Hygiene plays an important role in the preparation of curative and preventive discipline. It aims to give to the students knowledge on maintaining human health, disease prevention of infectious and non-infectious diseases, prolonging life. For successful implementation of preventive activity every physician should have knowledge on: impact of ambient environment factors on health; the measures of improving the environment, prevention of diseases, health maintenance.

Knowing the character of the usual environment of the Hospital (or other medium) on the body, the doctor will assess correctly the causes of illness, complications, prevention measures will apply effective treatment will solve the problems of work capacity and placement in the labour market.

All this is necessary for prevention activity in the doctor's curative practice. To instil discipline thorough knowledge required in the field of biology, chemistry, physics, geography and pre-university studies in the field of physiology, microbiology, biochemistry, physiopathology, therapy, surgery, endocrinology, infectious disease, etc. obtained his university studies.

- **Aim of the discipline in vocational training:**

Hygiene is the medical science that studies the health and the factors that condition it. Its ultimate goal is to preserve and promote health. Hygiene studies the influence of environmental factors on human health and elaborates sanitation measures, normative and sanitary measures aimed to create an optimal hygiene environment for living and working

- **Language of study:** English.
- **Beneficiaries:** students of second year of faculty Medicine II.



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II. ADMINISTRATION OF THE DISCIPLINE

Code of discipline		F.03.O.023; F.04.O.032	
Name of the discipline		General Hygiene	
Responsible for discipline		PhD, professor, Ion Bahnarel PhD, Assoc. Prof., Ovidiu Tafuni Assist. Prof., Radu Rusu	
Year	II	Semesters	III, IV
Total hours including:			102
Lectures	34	Laboratory classes	34
Seminars	34	Individual work	78
Form of assessment	E	Number of credits	6



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III. OBTAINED OBJECTIVES IN TEACHING THE DISCIPLINE

At the end of the course, the student will be able to:

▪ At the level of knowledge and understanding

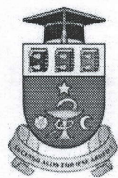
- to know the basic notions about hygiene as a science, sanitation, prevention;
- to study environmental factors and understand their impact on the health of the human body;
- to make acquaintance with the research methodology in the field of the impact of the environmental factors to the health of human body;
- become acquainted with the methods of assessing and processing of special literature, developing of reports and presentations on the basis of the work carried out.
- to know the need for hygienic measures of environment protection, working conditions and rest, health protection of children and adolescents, participate in the elaboration of rational nutrition basics, expertise in food quality and habits of habitual insecurities;

▪ At the level of application

- to carry out laboratory work using appropriate methods and tools;
- to solve case studies & exercises;
- to be able to compile records, reports, presentations on the basis of the work carried out;
- to apply in practice the knowledge gained in daily work;
- to be able to argue their own opinion and asses various information in studying of human health.

▪ At the level of integration

- to appreciate the importance of hygiene in the context of Medicine;
- to possess the abilities to organize prevention, to provide information about ways of maintaining health;
- to assess the impact of environmental factors on patients' health;
- to be able to assess the importance of hygienic measures in the medicine and in the public health institutions and organised staffs (institutions, organizations, etc.).



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IV. PRELIMINAR CONDITIONS AND REQUIREMENTS

Student of the second year requires the following:

- knowing of the teaching language;
- confirmed competences in science knowledge at lyceum level (biology, chemistry, physics);
- confirmed competences in science knowledge at university level (physiology, microbiology, biochemistry, physiopathology, therapy, surgery, endocrinology, infectious diseases etc.);
- digital competences (use of the Internet, document processing, electronic tables and presentations, use of graphics programs);
- ability in communication and team work;
- qualities - tolerance, compassion, autonomy.



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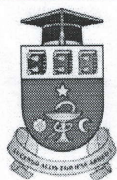
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V. MAIN TOPICS AND HOURS DISTRIBUTION

Lectures, practical lessons / laboratory work / seminars and individual work

Nr.	TOPIC	Hours		
		Lectures	Practical lessons, seminars	Individual work
1.	The necessity for knowledge of Hygiene by different specialties	1		
2.	Hygiene, General notions. The importance of hygiene as a discipline of preventive medicine. Normative hygiene principles.	2		
3.	Nutrition hygiene and food safety. Rational nutrition. Energy consumption. The energy value of the food ration.	2		
4.	Composition, quality of diet.	2		
5.	Hygiene of individual nutrition.		2	4
6.	Assessment of rational nutrition by method of calculation.		2	4
7.	Research on the content of vitamins in vegetables and dishes. Assessment of quantitative insurance of human body with vitamin "C".		2	
8.	Hygienic assessment of the quality and safety of food products (sanitary expertise of some of the main food products).		4	
9.	Organization and supervision of nutrition in organised groups.		6	6
10.	Food pathologies and Food poisoning, prevention. Research methods.	2	4	4
11.	Expertise and control of food and meals quality, nutrition organization in the medical-sanitary institutions.		2	6
12.	Hygiene of organised groups as the object of study, tasks, purposes, and research methods. Sanitary hygienic assurance of organised groups. Organization and carrying out of sanitary supervision over food and water supply in different condition.	2		
13.	Air hygiene. The hygienic importance of physical and chemical factors of air. Air pollution.	2		
14.	Air environment chemical factors and their influence on the human health. Air pollution by bacteria and dust. Express methods for determination of chemical substances in the air. Determination of CO ² by Vinokurov method.		2	
15.	Hygienic microclimate assessment in children's institutions and medical-sanitary facilities.		4	
16.	Hygienic evaluation of the lighting, ventilation and heating of various facilities.	2	4	
17.	Hygienic assessment of ventilation and heating systems of various rooms and facilities.	1	2	2
18.	Water hygiene and water supply.	2		
19.	Hygienic assessment of drinking water quality.		2	2
20.	Conditioning methods of drinking water. Organization of health supervision related to water supply;		2	
21.	Hygiene of medical-sanitary institutions.	4		



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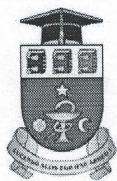
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22.	Preventive hygienic supervision. Expertise of hospital projects.		4	4
23.	Systemic assessment of placement of buildings, units, specific departments and sections in hospitals.		4	4
24.	Requirements to hygienic regime in hospitals. Prevention of intra-hospital infection.		4	4
25.	Occupational hygiene as the object of study, tasks, purposes, and research methods. Occupational noxes, occupational diseases.	2		
26.	Physiology of work.	2		
27.	Occupational hygiene aspects of computer operators.	1		
28.	Occupational hygiene of doctors of different specialties.	1		
29.	Occupational hygiene in agriculture.	2		
30.	Medical assistance of industry workers. Professional intoxications and diseases, notions. Professional disease prophylaxis.		2	
31.	Physical and intellectual work. Functional changes in the body during the physical work process.		2	2
32.	Occupational hygiene in organised groups.		2	2
33.	Hygiene of children and adolescents, the content and tasks of this discipline. Medical care in institutions of children and youth.	2		
34.	Research methods and methods for assessing the physical development of children and adolescents.		4	2
35.	Hygienic principles in the design, planning and construction of institutions for children and adolescents.		2	2
36.	Basics in ionizing radiation hygiene.	2		
37.	Basic principles of radiation protection in medical facilities.		4	
38.	Healthy lifestyle.		2	30
Total		34	68	78



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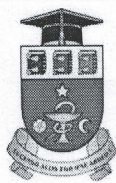
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VI. REFERENCE OBJECTIVES AND CONTENT UNITS

Objectives	Content unit
Theme (chapter) 1. Intorduction in Hygiene. Nutrition hygiene (First part)	
<ul style="list-style-type: none"> to define the basic concepts of general hygiene. to know the methods of research on the environment and its action on health. to know the apparatus and devices used in hygienic studies. to apply the methods of research in the field of hygiene. to integrate knowledge about promoting healthy lifestyles into everyday life. to define the components of human energy consumption. to know the methods for determining the energy consumption. 	<ul style="list-style-type: none"> Fundamental concepts of general hygiene. Methods of research into the environment and its action on health. Apparatus and devices used in hygienic studies. Methods of doing research on hygiene. Knowledge about promoting healthy lifestyles. Parts of energy consumption in humans. Methods of determining energy consumption.
Theme (chapter) 2. Nutrition hygiene (Second part)	
<ul style="list-style-type: none"> to apply the principles of rational nutrition. hygienic requirements to it. to demonstrate the principles of rational nutrition. hygienic requirements to it. to demonstrate the importance of nutrition quality in the prevention of diseases. to know the importance of vitamins, minerals in nutrition and determination of vitamin C in food products. to integrate into daily life the knowledge about the importance of proper nutrition balance in nutrition. to know the physiology and biochemistry of digestion. to define the classification of food pathologies, food intoxications and food intoxication. 	<ul style="list-style-type: none"> Principles of rational nutrition. hygienic requirements to it. Principles of rational nutrition. hygienic requirements to it. Importance of nutritional quality in the prevention of diseases. Knowledge of the importance of the proper balance of nutrients in the diet. Methods of determination of vitamin C in different food products. Methods of determination of body supply with vitamin C. Investigation of cases of food intoxications and taking appropriate measures of prophylaxis. Foodborne disease and its prophylaxis.
Theme (chapter) 3. Environmental hygiene	
<ul style="list-style-type: none"> to define microclimate, time and climate in hygienic vision. to define - air temperature, humidity, air velocity, atmospheric pressure its importance for thermoregulation. to apply methods and apparatus for determination. to know the hygienic importance of the wind of winds in the construction of children's and curative- 	<ul style="list-style-type: none"> Microclimate, time and climate in hygienic vision. Temperature, air humidity, its importance for thermoregulation. Speed of air movement, atmospheric pressure its hygienic importance. Methods and apparatus for determination. Particularities of thermoregulation in different pathological states, normalization of microclimate



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prophylactic institutions.

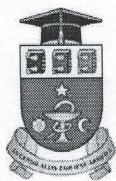
- to apply methods of research into the influence of microclimate on the human body.
- to know the complex action of microclimate factors on the body. Methods of appreciation.
- to apply air sampling methods for the determination of chemicals, dust and bacteria, air volume conditioning method, laboratory-express methods to investigate air pollution with noxious chemicals.
- to know the theoretical bases necessary for the sanitary control of ventilation and room heating.
- to apply laboratory instrumentation and calculation methods for ventilation and room heating control.
- to strengthen the theoretical knowledge about pharmaceutical products.
- to acquire the methods for determining the natural and artificial lighting (technical and calculation).
- to take measures to improve the lighting of the rooms in question.
- to acquire the physiological methods of appreciating the influence of illumination on the vision.
- to take measures to prevent diseases caused by the use of non-qualitative water.
- to apply the methods for determining the physical and chemical properties of water pollution with organic substances and methods of water disinfection.
- to know and apply the methods of water quality conditioning, decanting and water filtration: the stages in the conditioning process. Coagulation water clarification; the factors that determine its efficacy, the choice of coagulant dose.

in these cases.

- Complex action of microclimatic factors on the body. Methods of appreciation.
- The physiological and hygienic importance of the atmospheric air components.
- Physical, chemical and bacteriological indications of room air pollution.
- Evaluate the efficiency of ventilation and room heating.
- To recommend and to advocate measures for the decontamination of air in hospital and pharmaceutical premises.
- The physiological and hygienic importance of light. Hygienic requirements for lighting.
- Indices that characterize the level of natural illumination: luminosity coefficient, natural illumination coefficient, incidence angle, opening angle, etc.
- Indices that characterize the level of artificial illumination: direct luxmery, light power, calculated illumination, reflection coefficient and uniformity of illumination.
- Norms of natural and artificial lighting in the sanitary, children's and living rooms.
- Dependence of visual analyzer's main functions on illumination conditions (visual acuity, stability of clairvoyance, visual analyzer yield).
- Systematize and strengthen students' knowledge of the importance of water in the spread of infectious and noninfectious diseases.
- Physiological importance of water. Influence of chemical composition of water on population health, its epidemiological significance.
- Methods of conditioning water quality. Water decanting and filtration: the stages in the conditioning process. Coagulation water clarification; the factors that determine its efficacy, the choice of coagulant dose.
- Methods of water disinfection.

Theme (chapter) 4. Hygiene of medical-sanitary institutions

- to know the methods of general expertise of hospital construction projects.
- to appreciate from hygienically point of view, location and systematisation of the hospital.
- to define the notion of nosocomial infections.
- The importance of hospital hygiene in the complexity of population rehabilitation measures.
- The physician's functions in the preventive and current sanitary inspection performed in hospitals.
- Project notion, hygienic demands on the terrain,



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organizing and ensuring the sanitary-hygienic regime in hospitals.

- to know the measures to prevent nosocomial infections in hospitals.
- to define radiation protection measures when using ionizing radiation in medicine.

hospital location, inner systematization.

- The particularities of the internal systematization of maternity, the admissions section, the hospital salons, the surgery section, the operator block, the contagious diseases section.
- Nosocomial infections, notion, classification, sources and conditions of spreading.
- Specific and nonspecific measures for prophylaxis of nosocomial infections.
- The objective methods of assessing the hygienic regime in hospitals.
- Collecting and neutralizing solid waste and waste water from hospitals.

• Theme (chapter) 5. Work hygiene

- to define what is occupational hygiene and research methods.
- to know the influence of the work process on the functional state of the body.
- to know the characteristic of the main professional noxes.
- to apply the methods of determining overloading organs and systems of the body during work.
- to know the peculiarities of powder, noise of noise, vibration, ultrasound and their action on the body.
- to define what are the industrial toxins.
- to know and apply the means of individual protection.

- Influence of the work process on the functional state of the organism.
- The characteristic of the main professional noxes
- Overloading body organs and systems during work.
- Dust. Classification and particle features.
- Noise, vibration, ultrasound and their action on the body.
- General Characteristics of Industrial Toxicity.
- Personal protective equipment.

Theme (chapter) 6. Hygiene of children and adolescents

- to know the methods of determining the level of individual physical development and the group of children and adolescents.
- to know the methods of establishing the health groups.
- to know the hygienic aspects of the curative activity of doctors in institutions for children and adolescents.
- to develop a set of sanitary-hygienic recommendations for improving the health of children and adolescents

- Hygiene of children and adolescents, notions, methods of determining the level of individual physical development and the group of children and adolescents. Health groups. Laws and standards of children growth
- Hygienic aspects of the curative activity of doctors in institutions for children and adolescents.
- Arrangement, location and systematisation of institutions for children and adolescents.
- The hygienic bases of the daily regime and the instructive-educational process.
- Sanitary-hygienic recommendations for improving the health of children and adolescents.



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VII. SPECIFIC (SC) AND TRANSVERSAL(TC) PROFESSIONAL COMPETENCES AND STUDY FINDINGS.

Specific competences:

- Knowledge, understanding and use of specific language
- Identification and use of concepts, principles and theories of general hygiene in professional activities.
- Thorough knowledge, understanding and operation of theoretical knowledge and basic practical methods of hygiene.
- Good knowledge and practical application of the knowledge of hygiene in relation to the patient, taking into account the age and character of the person. .
- Hold professional principles of health maintenance and elucidate the causes and conditions that affect the body.
- Applying in practice research and determination methods to improve health at work.

Transversal competences:

- Applying rigorous and efficient working rules, manifesting a responsible attitude towards the scientific and didactic field, for optimal and creative valorisation of their own potential in specific situations, observing the principles and norms of professional ethics;
- Ensure effective deployment and effective engagement in team activities.
- Identify opportunities for continuous training and efficient use of learning resources and techniques for their own development.

Study findings:

- To know the organizational features, the basic properties of general hygiene;
- To understand the principles of rational nutrition, hygienic requirements for it;
- To understand the balance of nutrients in the diet;
- To know the hygienic importance of microclimate. The complex action of microclimate factors on the body. Methods of appreciation;
- To know the particularities of thermoregulation in different pathological states. Hygienic norm in these cases;
- Understand and use in practice the methods of chlorinating disinfection and water conditioning;
- To know the particularities of the work, the functional changes during the work;



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- To know the hygienic requirements regarding the location, the systematization of the pharmacies in the populated centers;
- To be able to assess the place and role of general hygiene in the practical training of the student;
- To be competent to use the knowledge and methodology of general hygiene in everyday practice;
- To be able to implement the knowledge gained in the research activity;
- To be competent to use critically and with confidence the scientific information obtained using the new information and communication technologies.



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VIII. INDIVIDUAL WORK OF THE STUDENT

Nr.	Expected product	Implementation strategies	Evaluation criterias	Deadline
1	Work with information sources	<ul style="list-style-type: none"> -carefully reading the lecture or the material in the manual on the subject. -Reading questions on the topic, which requires reflection on the subject. -getting acquainted with the list of additional information sources. -selecting the essential content. -formulating generalizations and conclusions about the importance of the subject. 	the ability to extract the essence. interpretive abilities the volume of work	During the semester
2	Work with practice notebook	<ul style="list-style-type: none"> - information analysis on the lecture topic and manual. - solving consecutive tasks. - formulating the conclusions at the end of each lesson. - verifying the end of the lesson. 	The volume of work. Solving the case problem. ability to formulate conclusions	During the semester
3	Applying of different learning techniques		The volume of work. the degree of perception of the essence. the quality of the conclusions. forming personal attitude.	During the semester
4	Work with On-line sources	Learning on-line materials from department's site	Visit of different electronic on-line sources.	During the semester
5	Preparing of presentations	selecting the research theme. establishing the plan, the terms of presentation, and the components of the PowerPoint presentation. theme, purpose, results, conclusions. practical applications. reviews	The volume of work. the degree of perception of the essence. the quality of the conclusions. forming personal attitude. the ability to extract the essence. ways of graphic presentation.	During the semester



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IX. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-EVALUATION

- **Teaching and learning methods**

General Hygiene discipline is taught in the classic way: with theoretical lectures and practical work. The lectures will be presented by certified staff. During practical work, students will study the influence of environmental factors (natural and manmade) on the human body using specific laboratory methods on specific topics, as well by using technical equipment. The Department reserves the right to conduct a part of practical work in interactive manner as following: heuristic conversation, case-problem solving, brainstorming, group work, individual study, work with textbook and text, debate, role play, simulation, interactive listening etc.

- **Applied didactic strategies / technologies (specific to the discipline)**

Brainstorming, Brainwriting, the Round Table, Group interview, Conference, Case-problem, Focus-group technique, Multi-voting, Cube technique etc.

- **Methods of assessment (including the method of calculation of final mark)**

Current: front and / or individual control via:

- (a) the application of docimological tests,
- (b) solving problems / exercises,
- (c) analysis of case-problems
- (d) playing role-games on the discussed topics.
- (e) examination test.

Final: Exam.

Methods of mark rounding

Intermediate marks grid (annual average, marks from the exam stages)	National scoring system	ECTS equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5	5	E
5,01-5,50	5,5	
5,51-6,00	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-9,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	



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The average annual mark and the scores of all the final examination (computer assisted, test, oral) - all will be expressed in numbers according to the scoring scale (according to the table), and the final grade obtained will be expressed in two decimal digits will be transferred to the notes book.

Absence on examination without good reason shall be recorded as "absent" and is equivalent to 0 (zero). The student has the right to re-take the exam twice.

X. RECOMMENDED LITERATURE:

- A. compulsory:

1. Gh. Ostrofeț. L. Groza. L. Cuznețov. Hygiene (practice book). Chișinău. 2009. 240 pag.
2. Doroftei Sorina. Vlaicu Brigitha. Petrescu Cristina. Putnoky Salomeia. Fira-Mladineascu Corneluța. The hygiene. Lito UMF Timișoara. 2003. 375 pag.
3. Duca Gheorghe. Scurlatov Yurii. Ecological chemistry. Chișinău. 2002. 289 pag.

- B. additional:

4. Guidelines for drinking-water quality. Second edition. Volume 1. Recommendations. World Health Organization Geneva. 143 pag.
5. Joint FAO/WHO Food Standards Programme CODEX ALIMENTARIUS COMMISSION. CODEX ALIMENTARIUS (FOOD HYGIENE BASIC TEXTS). THIRD EDITION. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS WORLD HEALTH ORGANIZATION. 2003. 68 pag.
6. Joint FAO/WHO Food Standards Programme CODEX ALIMENTARIUS COMMISSION. CODEX ALIMENTARIUS (FOOD IMPORT AND EXPORT INSPECTION AND CERTIFICATION SYSTEMS. COMBINED TEXTS). SECOND EDITION. FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS WORLD HEALTH ORGANIZATION. Rome, 2005. 76 pag.
7. Joint FAO/WHO Food Standards Programme. CODEX ALIMENTARIUS COMMISSION. PROCEDURAL MANUAL. Fifteenth edition. WHO FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS. Rome, 2005. 162 pag.
8. WHO Regional Office for Europe Copenhagen. European food and nutrition policies in action. Edited by Nancy Milio and Elisabet Helsing. WHO Regional Publications, European Series, No. 73. 176 pag.
9. UNDERSTANDING THE CODEX ALIMENTARIUS. REVISED AND UPDATED. WHO FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS Rome, 2005. 39 pag.
10. WHO. PUBLICATIONS. FOOD SAFETY. 36 pag.
11. FOOD SAFETY ISSUES. Food technologies and public health. FOOD SAFETY UNIT. WHO. 1995. 23 pag.
12. FOOD SAFETY ISSUES. International Conference on Nutrition. A challenge to the food safety community. FOOD SAFETY UNIT. WHO. 1996. 22 pag.
13. IRPTC. Chemical safety. 1984. 269 pag.