Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

٢٠٢٥

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T ٣/٢٩٠٦ on ٣/٥/٢٠٢٣ regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: .. **Al–Qasim Green University**

……

Faculty/Institute: …**Food Science Collage**……

Scientific Department: .. **Department of Food Health and Nutrition**……

Academic or Professional Program Name: . Bachelor's degree (B.Sc.) – Food science……

Final Certificate Name: .. **Bachelor's degree** (**B**.**Sc**.) **– Food science**……

Academic System: Course……

Description Preparation Date:**١ /٩/.٢٠٢٣**

File Completion Date: **١/٦/٢٠٢٥**

Signature:

Head of Department Name:

Bashaer Saleh Bayee

Date: ١/٦/٢٠٢٥

Signature:

Scientific Associate Name:

Date: ١/٦/٢٠٢٥

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

١. Program Vision

The academic staff of the Department of good Health and Nutritio at Al-Qasim Green University believe that students come to understand the discipline of Food Health and Nutrition through a combination of course work, laboratory experiences, research, and fieldwork. The combination of instructional methods leads students to a balanced understanding of the scientific methods used by Food health officer and nutritionists to make observations, develop insights and create theories about healthy lifestyle. Small class sizes and collaborative education within the food health and nutrition program foster a close working relationship between academic staff and students in an informal and nurturing atmosphere.

٢. Program Mission

The academic staff pursues a multifaceted charge at Al-Qasim Green University. The Program seeks to provide all food health and nutrition students with fundamental knowledge of food science, as well as a deeper understanding of a selected focus area within the food health and nutrition sciences. The curriculum and advising have been designed to prepare graduates for their professional future, whether they choose to work as field food health and nutrition specializing in food health inspection or nutrition, or to pursue advanced degrees in the food science or health sciences. The program also provides the necessary fundamental knowledge of the food sciences degree. In addition, food science and nutrition courses provide a key laboratory science experience for those students seeking to complete the general education requirements.

٣. Program Objectives

١. To provide a comprehensive education in Food science that stresses scientific reasoning and problem solving across the spectrum of disciplines within food science

٢. To prepare students for a wide variety of post-baccalaureate paths, including graduate school, professional training programs, or entry level jobs in any area of Food science

٣. To provide extensive hands-on training in electronic technology, statistical analysis, laboratory skills, and field techniques

٤. To provide thorough training in written and oral communication of scientific information

٥. To enrich students with opportunities for alternative education in the area of Food science through undergraduate research, internships, and study-abroad

٤. Program Accreditation

Does the program have program accreditation? And from which agency?

No

٥. Other external influences

Is there a sponsor for the program?

No

٦. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements	٤٢	٢٤٠	%١٠٠	
Summer Training				
Other				

* This can include notes whether the course is basic or optional.

٧. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
The first stage/first course	QGU١١٠١	English	٢	–
The first stage/first **course**	QGU١١٠٢	Arabic	٢	
The first stage/first course	FHN١١٠٣	Fundmentals of food manufactruing	٢	٢
The first stage/first **course**	QGU١١٠٤	Computer	٢	٢
The first stage/first course	FHN١١٠٥	Microbiology	٢	٢
The first stage/fist **course**	COFS١١٠٦	Mathematics	٢	٢
The first stage/second course	FHN١٢٠٧	Organic chemistry	٢	٢
The first stage/second **course**	COFS١٢٠٨	Biostatistics	٢	٢
The first stage/second course,	FHN١٢٠٩	Fundementals of Nutrition	٢	٢
The first stage/second **course**	FHN١٢٠١٠	Biosafety and Biosecurity	٢	٢
The first stage/second course,	QGU١٢٠١١	Human right and democracy	٢	
The first stage/second course,	COFS١٢٠١٢	Physics	٢	٢
The second stage/first course	FHN٢٣٠١٣	Food Microbiology	٢	٢
The second stage/first **course**	FHN٢٣٠١٤	Fundmentals of Human physiology	٢	٢
The second stage/first course	FHN٢٣٠١٥	Food Manufacturing	٢	٢
The second stage/first	FHN٢٣٠١٦	Analytical chemistry	٢	٢

course				
The second stage/first course	FHN٢٣٠١٧	Food Safety and Hyigene	٢	٢
The second stage/second **course**	FHN٢٤٠١٨	Pathogenic microbiology	٢	٢
The second stage/second course	FHN٢٤٠١٩	Metabolism and endocrinology	٢	٢
The second stage/second **course**	FHN٢٤٠٢٠	Nutritionla biochemistry	٢	٢
The second stage/second course,	FHN٢٤٠٢١	Nutritional habits and education	٢	٢
The second stage/second **course**	FHN٢٤٠٢٢	Dairy manufactruing	٢	٢
The third stage/first course,	FHN٣٥٠٢٣	Nutrition during life cycle	٢	٢
The third stage/first course,	FHN٣٥٠٢٤	Planning of food meals	٢	٢
The third stage/first course	FHN٣٥٠٢٥	Nutrition and Genetics	٢	٢
The third stage/first **course**	FHN٣٥٠٢٦	Immunology	٢	٢
The third stage/first course	FHN٣٥٠٢٧	Food analysis	٢	٢
The third stage/second **course**	FHN٣٦٠٢٨	Monitoring of food quality	٢	٢
The third stage/second course	FHN٣٦٠٢٩	Recycling and treating food factories wastes	٢	٢
The third stage/second course	FHN٣٦٠٣٠	Applied nutrition and dietetics	٢	٢
The third stage/second course	FHN٣٦٠٣١	Food preservation	٢	٢
The third stage/second course	FHN٣٦٠٣٢	Heath of Society	٢	٢
The fourth stage/first course	FHN٤٧٠٣٣	Theraputic nutrition ١	٢	٢
The fourth stage/first course	FHN٤٧٠٣٤	Health legislations for food and nutrition	٢	٢
The fourth stage/first course	FHN٤٧٠٣٥	Food epideminology	٢	٢

The fourth stage/first course	COFS٤٧٠٣٦	Scientific Research methodology	٢	٢
The fourth stage/second course	FHN٤٧٠٣٧	Developing theraputic food products	٢	٢
The fourth stage/second course	FHN٤٨٠٣٨	Food poisoning	٢	٢
The fourth stage/second course	FHN٤٨٠٣٩	Emerging technologies in food manufacturing	٢	٢
The fourth stage/second course	FHN٤٨٠٤٠	Theraputic nutrition ٢	٢	٢
The fourth stage/second course	COFS٤٨٠٤١	Professional ethics	٢	٢
The fourth stage/second course	FHN٤٨٠٤٢	Graduation project	٢	٢

٨. Expected learning outcomes of the program

Knowledge	
Graduates will be able to illustrate the structure and function of healthy food and appropriate nutritional during life cycle and for specific purposes such as nutrition of athletes and explain how they interact and function in real life.	
Skills	
Graduates will be able to formally communicate the results of food health and nutrition investigations using both oral and written communication skills.	

Ethics	
Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.	

٩. Teaching and Learning Strategies

١- Classroom education through theoretical and practical lectures

٢- Learning through hospitals

٣- Preparing scientific reports and research.

١٠. Evaluation methods

١- Exams. ٢- Writing and presenting reports and research. ٣- Scientific discussions. ٤- For daily attendance and activities.

١١. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof. Dr. Basher Salah Mahdi	physics	Material			yes	

Dr. Ali R. Mulakhudair	Biology	Microbiology			yes	
Dr. Zahraa Reasan Kareem Shati	Food science	Human nitration			yes	
Dr. Rabab Jawad Hassan	Biology	Microbiology			yes	
Dr. Muna Najam Khalaf	Food science	Food science			yes	
Dr. Ahmed Abdullah odai	physics	Material			yes	
Zainab Musdaq Al Shalah	Food science	Food science			yes	
Ahmed Dhahir AlJanabi	Agricultural guidance	Agricultural guidance			yes	
Rana Kadhim Ridha	chemistry	chemistry			yes	
Mustaf Falah Jaafar	Food science	Food science			yes	
Dhia Hussein Alawi	Food science	Food science			yes	
Mustafa Abdulkarim Mukef	Enghlish	Enghlish			yes	

Professional Development

Mentoring new faculty members

Directing new faculty members to the necessity of working on developing the scientific method, methods of delivering scientific lectures, and how to deliver practical material to the student

Professional development of faculty members

Working to find development ideas and working to develop scientific laboratories and the practical aspect, since the students' specialization is a scientific specialization.

١٢. Acceptance Criterion

Students allowed to be accepted into Department after passing and succeeding in the study and obtaining an average of ٧٠٪ or more for admission.

١٣. **The most important sources of information about the program**
Directing new faculty members to the necessity of working on developing the scientific method, methods of delivering scientific lectures, and how to deliver practical material to the student

١٤. Program Development Plan
Working to find development ideas and working to develop scientific laboratories and the practical aspect, since the students' specialization is a scientific specialization.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A١	A٢	A٣	A٤	B١	B٢	B٣	B٤	C١	C٢	C٣	C٤
٢٠٢٣-٢٠٢٤ first semester Step one	QGU١١٠١	English		√	√	√	√	√	√	√	√	√	√	√	√
	QGU١١٠٢	Arabic		√	√	√	√	√	√	√	√	√	√	√	√
	FHN١١٠٣	Fundmentals of food manufactruing		√	√	√	√	√	√	√	√	√	√	√	√
	QGU١١٠٤	Computer		√	√	√	√	√	√	√	√	√	√	√	√
	FHN١١٠٥	Microbiology		√	√	√	√	√	√	√	√	√	√	√	√
	COFS١١٠٦	Mathematics		√	√	√	√	√	√	√	√	√	√	√	√
٢٠٢٣-٢٠٢٤ second semester Step one	FHN١٢٠٧	Organic chemistry		√	√	√	√	√	√	√	√	√	√	√	√
	COFS١٢٠٨	Biostatistics		√	√	√	√	√	√	√	√	√	√	√	√
	FHN١٢٠٩	Fundementals of Nutrition		√	√	√	√	√	√	√	√	√	√	√	√
	FHN١٢٠١٠	Biosafety and Biosecurity		√	√	√	√	√	√	√	√	√	√	√	√
	QGU١٢٠١١	Human right and democracy		√	√	√	√	√	√	√	√	√	√	√	√

	COFS١٢٠١٢	Physics		√	√	√	√	√	√	√	√	√	√	√	√
٢٠٢٣-٢٠٢٤ second semester Step two	FHN٢٣٠١٣	Food Microbiology		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٣٠١٤	Fundmentals of Human physiology		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٣٠١٥	Food Manufacturing		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٣٠١٦	Analytical chemistry		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٣٠١٧	Food Safety and Hyigene		√	√	√	√	√	√	√	√	√	√	√	√
٢٠٢٣-٢٠٢٤ second semester Step two	FHN٢٤٠١٨	Pathogenic microbiology		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٤٠١٩	Metabolism and endocrinology		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٤٠٢٠	Nutritionla biochemistry		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٤٠٢١	Nutritional habits and education		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٢٤٠٢٢	Dairy manufactruing		√	√	√	√	√	√	√	√	√	√	√	√
٢٠٢٣-٢٠٢٤ first semester Step three	FHN٣٥٠٢٣	Nutrition during life cycle		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٣٥٠٢٤	Planning of food meals		√	√	√	√	√	√	√	√	√	√	√	√

	FHN٣٥٠٢٥	Nutrition and Genetics		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٣٥٠٢٦	Immunology		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٣٥٠٢٧	Food analysis		√	√	√	√	√	√	√	√	√	√	√	√	√
٢٠٢٣-٢٠٢٤ second semester Step three	FHN٣٥٠٢٣	Monitoring of food quality		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٣٥٠٢٤	Recycling and treating food factories wastes		√	√	√	√	√	√	√	√	√	√	√	√	√
٢٠٢٣-٢٠٢٤ first semester Step four	FHN٣٥٠٢٥	Applied nutrition and dietetics		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٣٥٠٢٦	Food preservation		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٣٥٠٢٧	Heath of Society		√	√	√	√	√	√	√	√	√	√	√	√	√
٢٠٢٣-٢٠٢٤ second semester Step four	FHN٤٧٠٣٣	Theraputic nutrition ١		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٤٧٠٣٤	Health legislations for food and nutrition		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٤٧٠٣٥	Food epideminology		√	√	√	√	√	√	√	√	√	√	√	√	√
	COFS٤٧٠٣٦	Scientific Research methodology		√	√	√	√	√	√	√	√	√	√	√	√	√
	FHN٤٧٠٣٧	Developing		√	√	√	√	√	√	√	√	√	√	√	√	√

		theraputic food products													
	FHN٤٨٠٣٨	Food poisoning		√	√	√	√	√	√	√	√	√	√	√	√
	FHN ٤٨٠٣٩	Emerging technologies in food manufacturing		√	√	√	√	√	√	√	√	√	√	√	√
	FHN ٤٨٠٤٠	Theraputic nutrition ٢		√	√	√	√	√	√	√	√	√	√	√	√
	COFS٤٨٠٤١	Professional ethics		√	√	√	√	√	√	√	√	√	√	√	√
	FHN٤٨٠٤٢	Graduation project		√	√	√	√	√	√	√	√	√	√	√	√

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Course Description Form

١. Course Name: Analytical chemistry
٢. Course Code: FHN٢٣٠١٦
٣. Semester / Year:second
٤. Description Preparation Date:٣٠ /٤/٢٠٢٤
٥. Available Attendance Forms: class
٦. Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦
٧. Course administrator's name (mention all, if more than one name)
Name: Rana khadim Ridha Email:

٨. Course Objectives	
- The student learns about the importance of analytical chemistry and its types. - The student learns the methods of finding concentrations of chemicals and the types of chemical titration. - The student learns the basic principles of quantitative and qualitative analysis methods in analytical chemistry.	• ..... • ..... • .....

٩. Teaching and Learning Strategies	
Strategy	١- Lectures ٢- Discussion ٣- Brainstorming Problem solving ٤- Practical presentations& Simulation Method ٥- Lab works(Practical in computer Lab

	٦- Projects Self-learning ٧- Cooperative Learning.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Analytical chemistry classificati steps chemical analysis.		Theoretical-practical	Test
٢	٢	Methods expression concentrat Examples solution of concentrat		Theoretical-practical	Test
٣		titrations simple system, a base,		Theoretical-practical	Test
٤	٢	Volumetric analysis, Clarificatio of the gen principles volumetric analysis.		Theoretical-practical	Test
٥	٢	neutralizat titrations simple system, a base,		Theoretical-practical	Test
٦	٢	Report ab subjects week ١, ٢ and ٥.		Theoretical-practical	Test
٧	٢	*Precipitati titration*		Theoretical-practical	Test
8	٢	*Precipitati titration*		Theoretical-practical	Test
٩	٢	*Complex-io Formation titration. Oxidation-*		Theoretical-practical	test

		reduction titrations			
١٠	٢	Oxidation-reduction titrations .		Theoretical-practical	Discussion
11	٢	*Precipitations titration*		Theoretical-practical	Discussion
١٢	٢	Introducti to We Quantitati Analysis v Explanatio of Method Weight Analysis. Detailed explanatio the we analysis steps.		Theoretical-practical	Discussion
١٣	٢	Step We Factor, General R Finding Weight Fa .		Theoretical-practical	Discussion
14	٢	**Seminar**		Theoretical-practical	Discussion
١٥	٢	Analytical chemistry classificati steps chemical analysis.		Theoretical-practical	Discussion

١١. Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢. Learning and Teaching Resources

Required textbooks (curricular books any)	7th Edition of Analytical Chemistry Fundamentals of Analytical Chemistry Principles and Practice of Analytical Chemistry
Main references (sources)	Modern Analytical Chemistry.
Recommended books and references (scientific journals,	7th Edition of Analytical Chemistry Fundamentals of Analytical Chemistry Principles and Practice of Analytical Chemistry

reports…)	
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: Biosafety and security
٢-Course Code: FHN١٢٠١٠
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٢٥/٥
٧-Course administrator's name (mention all, if more than one name)
Name: Asst.Prof. Dr. Ali R. Mulakhudair Email:
٨–Course Objectives

١. Demonstrate an understanding of the structural similarities and differences among microbes and the unique structure/function relationships of prokaryotic cells. ٢. Comprehend the fundamentals of dairy microbiology. ٣. Appreciate the diversity of dairy microorganisms and microbial communities in milk and milk products and recognize how microorganisms solve the fundamental problems their environments present. - ٤. Recognize how the underlying principles of epidemiology of disease and pathogenicity of in milk and milk products	• ..... • ..... • .....

٩-Teaching and Learning Strategies

Strategy	Type something like: The main strategy that will be adopted in delivering this mo dule encourage students' participation in the exercises, while at the same time refinin and expanding their critical thinking skills. This will be achieved through classes, inte ractiv tutorials and by considering types of simple experiments involving some samplin g acti that are interesting to the students.

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation meth od
١	٢	Introduction biosafety security		Theoretical-practica	Test
٢	٢	Biosafety barriers in la		Theoretical-practica	Test
٣		Biosafety lev		Theoretical-practica	Test
٤	٢	Biological agents		Theoretical-practica	Test
٥	٢	Biorisk biohazard		Theoretical-practica	Test
٦	٢	Containment level		Theoretical-practica	Test
٧	٢	Mid-term Ex		Theoretical-practica	Test
8	٢	Biorisk management system		Theoretical-practica	Test
٩	٢	Types biohazardous wastes		Theoretical-practica	Test
١٠	٢	Disinfection decontamina		Theoretical-practica	discussi on

11	٢	Accident response		Theoretical-practica	discussi on
١٢	٢	Hazardous chemicals		Theoretical-practica	discussi on
١٣	٢	Overview biological sa equipment		Theoretical-practica	discussi on
14	٢	Overview security equipment		Theoretical-practica	discussi on
١٥	٢	Biosecurity		Theoretical-practica	discussi on

١١-Course Evaluation
٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical fina test

١٢-Learning and Teaching Resources	
Required textbooks (curricular books, any)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A , & D Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). J wetz, Adelberg's Medical Microbiology, ٢٨e. M Graw https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&se tionid
Main references (sources)	WILLEY, J. M., SHERWOOD, L. M., WOOLVERTON, C. J., & P RESC (٢٠١٢). Prescott's principles of microbiology. New York, McGraw-Hill
Recommended books and references (scientific journals, reports…)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A , & D Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). J wetz, Adelberg's Medical Microbiology, ٢٨e. M Graw https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&se tionid
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: English Language
٢-Course Code: UoB١٢٣٤٥
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Mustafa Abdulkareem Mukheef
Email:

٨–Course Objectives

- To assist the learner to develop the language, literacy and numeracy skills related to English as a Foreign Language through the medium of the module themes and content.
- To enable the learner to communicate effectively and appropriately in real life situation.
- To facilitate the learner to read, interpret and comprehend a variety of materials using a range of media.
- To develop interest in and appreciation of English language and grammar.
- To develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing.
- To revise and reinforce structure already learnt..

- .....
- .....
- .....

٩–Teaching and Learning Strategies

Strategy	▪ Focus on academic language, literacy and vocabulary. ▪ Link background knowledge and culture to learning. ▪ Increase comprehensible input and language output. ▪ Promote classroom interaction.. Stimulate higher-order thinking skills and use of learning strategies.

١٠–Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Greetings and Farewells.		Theoretical-practical	Test
٢	٢	Your Wo Countries Nationalities.		Theoretical-practical	Test
٣		All about you/ Jo Personal Informat and So Expressions.		Theoretical-practical	Test
٤	٢	Family and Frier Adjective+ Nouns		Theoretical-practical	Test
٥	٢	The Way I li Languages Nationalities/ Numbers and Price		Theoretical-practical	Test
٦	٢	Every day/ Present Time/ D of the Week.		Theoretical-practical	Test
٧	٢	My Faviourites/ Fo / Drinks/ Spo Pronouns….		Theoretical-practical	Test
8	٢	Where I live/ Roo and Furnitu Directions Prepositions.		Theoretical-practical	Test
٩	٢	Times past/ P tense/ Saying Ye Irregular Verbs….		Theoretical-practical	test
١٠	٢	We had a great ti Questions Negatives.		Theoretical-practical	Discussion
11	٢	I can do that/ Requests and Offers/ Adverbs.		Theoretical-practical	Discussion
١٢	٢	Please and thank y Some and any/ L and I would like.		Theoretical-practical	Discussion
١٣	٢	Weather Forecast.		Theoretical-practical	Discussion

14	٢	Here and n Present continu and Present simple		Theoretical-practical	Discussion
١٥	٢	It's time to go/ Fut plans/ Revision.		Theoretical-practical	Discussion

١١-Course Evaluation
٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources	
Required textbooks (curricular books any)	**John and Liz Soarse, *New Headway Plus: Beginner*. Oxford: Oxford University Press, ٢٠١٤.**
Main references (sources)	**John and Liz Soarse, *New Headway Plus: Intermediate*. Oxford: Oxford University Press, ٢٠١٠.**
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: Mathematics
٢-Course Code: COFS١١٠٦
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Ahmed Abdulla Auda
Email:

٨–Course Objectives

- Be able to apply problem-solving and logical skills
- Have a deeper understanding of mathematical theory.
- Have a solid knowledge of elementary statistics
- Mathematics provides an effective way of building mental discipline and encourages logical reasoning
- organize, represent, analyse, interpret data and make conclusions and predictions from its results

- .....
- .....
- .....

٩–Teaching and Learning Strategies

Strategy	This module provides a comprehensive introduction to fundamental concepts in mathematic and calculus. It covers topics such as functions, inequalities, limits, derivatives, and integrals. The module aims to develop students' mathematical skills and problem-solving abilities in various fields of study. Emphasis is placed on understanding the theoretical concepts and applying them to real-world scenarios. The module also includes regular quizzes, mid-term exams, and a final exam to assess students' progress and understanding of the material.

١٠–Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Introduction to Functions		Theoretical-practi	Test
٢	٢	Inequalities		Theoretical-practi	Test

٣		Limits		Theoretical-practi	Test
٤	٢	Derivatives (Part ١)		Theoretical-practi	Test
٥	٢	Derivatives (Part ٢)		Theoretical-practi	Test
٦	٢	Applications of Derivatives		Theoretical-practi	Test
٧	٢	Mid-Term Exam		Theoretical-practi	Test
8	٢	Indefinite Integrals		Theoretical-practi	Test
٩	٢	Practice problems an exercises		Theoretical-practi	Test
١٠	٢	Definite Integrals (Pa ١)		Theoretical-practi	Discussion
11	٢	Definite Integrals (Part ٢)		Theoretical-practi	Discussion
١٢	٢	Applications of Integration		Theoretical-practi	Discussion
١٣	٢	Differential Equation		Theoretical-practi	Discussion
14	٢	Multivariable Calcul (Optional)		Theoretical-practi	Discussion
١٥	٢	**Preparatory week before the final Exa**		Theoretical-practi	Discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ theoretical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricular books any)	An Introduction to Higher Mathematics, Patrick Kee,f٢٠٢١ AN INTRODUCTION TO MATHEMATICS, A. N. WHITEHEAD,٢
Main references (sources)	COMMON CORE STATE STANDARDS for MATHEMAT

	William Schmidt,٢٠١٨
Recommended books and references (scientific journals, reports…)	An Introduction to Higher Mathematics, Patrick Kee,f٢٠٢١ AN INTRODUCTION TO MATHEMATICS, A. N. WHITEHEAD,١
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: Microbiology
٢-Course Code: FHN٢٣٠١٦
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٧٥/٧
٧-Course administrator's name (mention all, if more than one name)
Name: Asst.Prof. Dr. Ali R. Mulakhudair Email:
٨–Course Objectives

١. Demonstrate an understanding of the structural similarities and differences among microbes and the unique structure/function relationships of prokaryotic cells. ٢. Comprehend the fundamentals of dairy microbiology. ٣. Appreciate the diversity of dairy microorganisms and microbial communities in milk and milk products and recognize how microorganisms solve the fundamental problems their environments present. ٤. Recognize how the underlying principles of epidemiology of disease and pathogenicity of in milk	• ….. • ….. • …..

and milk products. -	

٩-Teaching and Learning Strategies

Strategy	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Introduction to microbial world		Theoretical-practical	Test
٢	٢	Microbial Structure Function		Theoretical-practical	Test
٣		Microbial Metabolism		Theoretical-practical	Test
٤	٢	Microbial Growt		Theoretical-practical	Test
٥	٢	Microbial genetic		Theoretical-practical	test
٦	٢	Molecular Information F and Pro Processing		Theoretical-practical	Test
٧	٢	Mid-term Exam		Theoretical-practical	Test
8	٢	Microbial Symbioses Humans		Theoretical-practical	Test
٩	٢	Virology		Theoretical-practical	Test
١٠	٢	Person to Per Bacterial and V Diseases		Theoretical-practical	Discussion

11	٢			Theoretical-practical	Discussion
١٢	٢	Vectorborne Soilborne Bacte and Viral Disease		Theoretical-practical	Discussion
١٣	٢	Waterborne Foodborne Bacte and Viral Disease		Theoretical-practical	Discussion
14	٢	Introduction mycology		Theoretical-practical	Discussion
١٥	٢	Introduction Parasitology		Theoretical-practical	Discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricular books, if any)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A., & Detrick I Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). Jawetz, Melnic Adelberg's Medical Microbiology, ٢٨e. McGraw https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&sectionid=٢١٧٧٦٨
Main references (sources)	WILLEY, J. M., SHERWOOD, L. M., WOOLVERTON, C. J., & PRESCOTT, L (٢٠١٢). Prescott's principles of microbiology. New York, McGraw-Hill.
Recommended books and references (scientific journals, reports…)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A., & Detrick B, & Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). Jawetz, Melnick, Adelberg's Medical Microbiology, ٢٨e. McGraw Hill. https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&sectionid=٢١٧٧٦٨
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: Physics

٢-Course Code: COFS١٢٠١٢

٣-Semester / Year:second

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Bashair saleh mehdi
Email:

٨–Course Objectives

- This course deals with the basic concept of physics
- This is the basic subject for introduction of biophysics .
- To develop problem solving skills through the application of techniques.
- To understand interaction of heat and temperature ,pressure on food components.
- To solve some mathematic problem for biophysics concept.
-

- .....
- .....
- .....

٩–Teaching and Learning Strategies

Strategy

١. This course deals with the basic concept of physics
٢. This is the basic subject for introduction of biophysics .
٣. To develop problem solving skills through the application of techniques.
٤. To understand interaction of heat and temperature ,pressure on food components.
٥. To solve some mathematic problem for biophysics concept.

١٠–Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Ev
١	٢	Viscosity		Theoretical-practical	

٢	٢	The Mechani properties materials		Theoretical-practical
٣		Heat Temperature		Theoretical-practical
٤	٢	Motion in Dimension		Theoretical-practical
٥	٢	Laser and mec application		Theoretical-practical
٦	٢	Introduction optics		Theoretical-practical
٧	٢	Midterm exa Effects Radiation Humans		Theoretical-practical
8	٢	Physical Properties Fluid		Theoretical-practical
٩	٢	Electric Curre		Theoretical-practical
١٠	٢	Physical-Chemical Interactions food		Theoretical-practical
11	٢	Pressure and temperature		Theoretical-practical
١٢	٢	Conductive H Transfer		Theoretical-practical
١٣	٢	Effect Irradiation Food safety quality		Theoretical-practical
14	٢	Polymers Industry		Theoretical-practical
١٥	٢	**Preparatory week before final Exam**		Theoretical-practical

١١–Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical fina test

١٢–Learning and Teaching Resources	
Required textbooks (curricular if any)	Biophysics: An Introduction, Dadan Rosana , Mechanical and Electrical Technology, Guanghs
Main references (sources)	APPLIED BIOPHYSICS, Paata J. Kervalishvili,٢٠٢١
Recommended books and references (scientific journals, reports…)	Biophysics: An Introduction, Dadan Rosana , Mechanical and Electrical Technolo Wisnoe,٢٠١٥
Electronic References, Website	https://ia٨٠٠٢٠٤.us.archive.org/٣٠/items/biophysicscon ep٠

Course Description Form

١-Course Name: Dairy manufacturing

٢-Course Code: FHN٢٤٠٢٢

٣-Semester / Year:second

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٧٥/٧

٧-Course administrator's name (mention all, if more than one name)

Name: Dr.haneen Abdul Ameer Lateef
Email:

٨–Course Objectives

١- Recognizing the importance of the course from the scientific and practical point of view. ٢- Teaching students the nutritional value of milk and its products. ٣- Teaching the student the components of milk and its products and the percentage of these components.	• ..... • ..... • .....

٤- Teaching the student the precise chemical composition of the components of milk and its products. ٥- Teaching students the equipment and chemicals used in dairy production. ٦- Teaching the student how to manufacture ice cream and dairy products. ٧- Teaching students modern methods and means in the dairy industry. ٨-Study the technologies used in the manufacture of different cheeses. ٩- Studying the steps to control the quality of the production of cheese and fermented milk products. - ١٠-Studying the importance of preparing and equipping tools, supplies and production conditions in dairy factories.	

٩–Teaching and Learning Strategies

Strategy	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

١٠–Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Introduction and introduct the curriculum		Theoretical-practical	Test
٢	٢	Nutritional value of products		Theoretical-practical	Test

٣		The economic importan milk and its products		Theoretical-practical	Test
٤	٢	Diseases transmitted by m		Theoretical-practical	Test
٥	٢	milk components Wate fatty substances		Theoretical-practical	Test
٦	٢	protein and the sugar lacto		Theoretical-practical	Test
٧	٢	Mid-term Exam		Theoretical-practical	Test
8	٢	Vitamins and lactose suga		Theoretical-practical	Test
٩	٢	enzymes and salts		Theoretical-practical	Test
١٠	٢	Microorganisms in milk		Theoretical-practical	Discussion
11	٢	secretion of milk		Theoretical-practical	Discussion
١٢	٢	Milk treatment in treatment		Theoretical-practical	Discussion
١٣	٢	Dairy production		Theoretical-practical	Discussion
14	٢	Milk fermentation industry		Theoretical-practical	Discussion
١٥	٢	Incidental dairy products		Theoretical-practical	Discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricular books any)	Principles of Dairy Manufacturing, edited by Dr. Helan Hammadi Tikriti and Khaled Mohammed Al-Khal
Main references (sources)	Al-Shabibi , M. M. A. , J. Tobias , S. Al-Fayadh , M. H. 1975. M . Sc. Thesis , University of Baghdad Iraq . L. Tuckey , and E. Langner . 1964. J. Dairy Sci. 47 : 259.

Recommended books and references (scientific journals, reports…)	Principles of Dairy Manufacturing, edited by Dr. Helan Hammadi Tikriti and Khaled Mohammed Al-Khal
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١Course Name: Food microbiology
٢-Course Code: FHN٢٣٠١٣
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦
٧-Course administrator's name (mention all, if more than one name)
Name: Dr. Ali R. Mulakhudair Email:
٨–Course Objectives

١. Demonstrate an understanding of the structural similarities and differences among microbes and the unique structure/function relationships of prokaryotic cells. ٢. Comprehend the fundamentals of dairy microbiology. ٣. Appreciate the diversity of dairy microorganisms and microbial communities in milk and milk products and recognize how microorganisms solve the fundamental problems their environments present. ٤. Recognize how the underlying principles of epidemiology of disease and	• ..... • ..... • .....

pathogenicity of in milk and milk products. -	

٩–Teaching and Learning Strategies

Strategy	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

١٠–Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	duction to the microb		Theoretical-practical	Test
٢	٢	portance of Microbes relationship with fo		Theoretical-practical	Test
٣		d contamination by m nd source of contamir		Theoretical-practical	Test
٤	٢	nsic Parameters of Fo Affect Microbial Gro		Theoretical-practical	Test
٥	٢	insic Parameters of Fo Affect Microbial Gro		Theoretical-practical	Test
٦	٢	at Microbiology and S		Theoretical-practical	Test
٧	٢	Mid-term Exam		Theoretical-practical	Test
8	٢	ultry meat Microbiolo Spoilage		Theoretical-practical	Test
٩	٢	and fish products mic and spoilage		Theoretical-practical	Test

١٠	٢	etables and vegetable microbiology and spo		Theoretical-practical	Discussion
11	٢	Fruits and fruit produ microbiology and spo		Theoretical-practical	Discussion
١٢	٢	Cereals and cereal pro microbiology and spo		Theoretical-practical	Discussion
١٣	٢	s, oilseeds, and dried microbiology and spo		Theoretical-practical	discussion
14	٢	Milk and dairy produ microbiology and spo		Theoretical-practical	Discussion
١٥	٢	Milk and dairy produ microbiology and spo		Theoretical-practical	Discussion

١١--Course Evaluation
٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources	
Required textbooks (curricular books any)	7th Edition of Analytical Chemistry Fundamentals of Analytical Chemistry Principles and Practice of Analytical Chemistry
Main references (sources)	Modern Analytical Chemistry.
Recommended books and references (scientific journals, reports…)	7th Edition of Analytical Chemistry Fundamentals of Analytical Chemistry Principles and Practice of Analytical Chemistry
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: Food safety and Hygiene;
٢-Course Code: FHN٢٣٠١٧
٣-Semester / Year:second

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Prof. Dr. Ali R. Mulakhudair
Email:

٨-Course Objectives

١. Demonstrate an understanding of food safety and hygiene ٢. Comprehend the fundamentals of food safety and its importance . ٣. Appreciate the diversity terminology used to describe food safety and hygiene ٤. Recognize how the underlying principles of food safety control and food storage -	• ..... • ..... • .....

٩-Teaching and Learning Strategies

Strategy	Type something like: The main strategy that will be adopted in delivering this module is to encourage student' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Mutual ecognition of tudents and urriculum that vill be taught er seme ttendance ecognition r nd o bligations		Theoretical-practic	test

٢	٢	Historical aspect afe food produc		Theoretical-practic	test
٣		The system of f afety manageme		Theoretical-practic	test
٤	٢	ystem of Ha Analysis Critical Cont oint (HAC rinciples HACCP and CC		Theoretical-practic	test
٥	٢	Basic Principles ood Sa ccording to World He Organization		Theoretical-practic	test
٦	٢	The main cause ood disea icrobiological, hemical hysical ri ontamination, c ontamination, rimary econdary f ollution		Theoretical-practic	test
٧	٢	Mid-term Exam		Theoretical-practic	test
8	٢	Unsafe food for health		Theoretical-practic	test
٩	٢	Food Sa Control		Theoretical-practic	test
١٠	٢	Management food produ Good Produc Practices, G Agricultural Practices, G Hygienic Practi		Theoretical-practic	discussion
11	٢	The importance of sanitation, sterilization, disinfection, deratization in Food Safety		Theoretical-practic	discussion
١٢	٢	Food hygiene Cooling of fo Food process Packaging,		Theoretical-practic	discussion

		Labeling, Declaration, Transportation.			
١٣	٢	Personal hyg of staff, hyg facilities w food is produ and processed		Theoretical-practic	discussion
14	٢	Food storage		Theoretical-practic	discussion
١٥	٢	Food storage		Theoretical-practic	discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricu books, if any)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A., & Detrick B, & Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). *Jawetz, Melnick, & Adelberg's Medical Microbiology,* ٢٨*e*. McGraw Hill. https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&sectionid=٢١٧٧٦٨٧٤
Main references (sources)	*Robinson, Richard K.. "Dairy microbiology handbook: the microbiology of milk and products." (٢٠٠٥).*
Recommended books and references (scientific journals, reports…)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A., & Detrick B, & Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). *Jawetz, Melnick, & Adelberg's Medical Microbiology,* ٢٨*e*. McGraw Hill. https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&sectionid=٢١٧٧٦٨٧٤
Electronic References, Websites	

Course Description Form

١-Course Name: Organic chemistry

٢-Course Code: FHN١٢٠٧

٣-Semester / Year:second

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Rana khadim Ridha
Email:

٨-Course Objectives

-	• ..... • ..... • .....

٩-Teaching and Learning Strategies

Strategy	١- Lecture method and the use of the interactive whiteboard ٢- Explanation and clarification Providing students with the basics and additional topics related to the outputs of chemical thinking and analysis organic. ٣- Forming discussion groups during lectures to discuss organic chemistry topics that require thinking and analysis. ٤- Asking students, a set of reflective questions during the lectures, such as what, how, when, and why for specific topics Giving students homework that requires self-explanations in causal ways

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	General principles organic chemistry		Theoretical-practical	test
٢	٢	Saturated alip hydrocarbons.		Theoretical-practical	test
٣		Aliphatic compounds.		Theoretical-practical	test
٤	٢	Alkanes.		Theoretical-practical	test
	٢	Alkenes.		Theoretical-practical	test

٥					
٦	٢	**Seminar**		Theoretical-practical	test
٧	٢	Alkyne.		Theoretical-practical	test
8	٢	**Mid-term exam**		Theoretical-practical	test
٩	٢	Ethers and Alcohols.		Theoretical-practical	test
١٠	٢	**Seminar**		Theoretical-practical	discussion
11	٢	Simple carbonyl compounds such as aldehydes and ketone		Theoretical-practical	discussion
١٢	٢	Carboxylic acids.		Theoretical-practical	discussion
١٣	٢	**Seminar**		Theoretical-practical	discussion
14	٢	Amines and a compounds.		Theoretical-practical	discussion
١٥	٢	**Final exam**		Theoretical-practical	discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricular books any)	7th Edition of Analytical Chemistry Fundamentals of Analytical Chemistry Principles and Practice of Analytical Chemistry
Main references (sources)	Modern Analytical Chemistry.
Recommended books and references (scientific journals, reports…)	7th Edition of Analytical Chemistry Fundamentals of Analytical Chemistry Principles and Practice of Analytical Chemistry
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: Pathogenic microbiology

٢-Course Code: FHN٢٤٠١٨

٣-Semester / Year: first

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Rana khadim Ridha
Email:

٨-Course Objectives

١. Provide a comprehensive theoretical knowledge of medical microbiology including the spread of microorganisms, disease causation, diagnosis and/or treatment of pathogens of major significance to public health and advanced practical training in this diverse field ٢. The increasing incidence of microbial infections worldwide is being compounded by the rapid evolution of drug-resistant variants and opportunistic infections by other organisms - ٣. The program places particular emphasis on practical aspects of the subjects most relevant to current clinical laboratory practice and research.	• ..... • ..... • .....

٩-Teaching and Learning Strategies

Strategy	Type something like: The main strategy that will be adopted in delivering this module is to encourage stude nts' pa while at the same time refining and expanding their critical thinking skills. This will be achieved through c asses, considering types of simple experiments involving some sampling activities that are interesting to the students.

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method
١		Introduction to pathogenic microbiology		Theoretical-pract cal

	٢			
٢	٢	Classification of pathogenic microbes		Theoretical-pract cal
٣		Pathogenesis of Bacterial Infection		Theoretical-pract cal
٤	٢	Normal human microflora		Theoretical-pract cal
٥	٢	Spore-Forming Gram-Posi Bacilli: *Bacillus* and *Clostridium* Specie		Theoretical-pract cal
٦	٢	The Staphylococci		Theoretical-pract cal
٧	٢	Mid-term Exam		Theoretical-pract cal
8	٢	The Streptococci, Enterococci, and Rel Genera		Theoretical-pract cal
٩	٢	Enteric Gram-Negative R (Enterobacteriaceae)		Theoretical-pract cal
١٠	٢	*Pseudomonas*, *Acinetobacter*, *Burkholde* and *Stenotrophomonas*		Theoretical-pract cal
11	٢	*Vibrio, Aeromonas, Campylobacter, and Helicobacter*		Theoretical-pract cal
١٢	٢	Antimicrobial Chemotherapy		Theoretical-pract cal
١٣	٢	Pathogenesis and Control of Viral Disea		Theoretical-pract cal
14	٢	Medical Mycology		Theoretical-pract cal
١٥	٢	and parasitology		Theoretical-pract cal

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical fina test

١٢-Learning and Teaching Resources

Required textbooks (curricular books, if any)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., &

	Mitchell T.G., & Sakanari J.A., & Hotez P, & Mej a R(Ed
Main references (sources)	Jawetz, Melnick, & Adelberg's Medical Microb https://accesspharmacy.mhmedical.com/content.as x?boo
Recommended books and references (scientific journals, reports…)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mitchell T.G., & Sakanari J.A., & Hotez P, & Mej a R(Ed
Electronic References, Websites	https://en.wikipedia.org/wiki/Analyti

Course Description Form

١-Course Name: Monitoring of food quality
٢-Course Code: FHN٣٦٠٢٨
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦
٧-Course administrator's name (mention all, if more than one name)
Name: Asst.Prof. Dr. Ali R. Mulakhudair Email:
٨-Course Objectives

١. Demonstrate an understanding of food safety and hygiene ٢. Comprehend the fundamentals of food safety and its importance . ٣. Appreciate the diversity terminology used to describe food safety and hygiene ٤. Recognize how the underlying principles of food safety control and food storage -	• ..... • ..... • .....

٩-Teaching and Learning Strategies

Strategy	١. Demonstrate an understanding of food safety and hygiene ٢. Comprehend the fundamentals of food safety and its importance . ٣. Appreciate the diversity terminology used to describe food safety and hygiene ٤. Recognize how the underlying principles of food safety control and food storage

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Terms And Definitions food quality		Theoretical-practical	test
٢	٢	Food Sampling		Theoretical-practical	test
٣		Specifications raw materials		Theoretical-practical	test
٤	٢	System of Haz Analysis Critical Cont Point (HAC principles HACCP and CCI		Theoretical-practical	test
٥	٢	Basic Principles Food Sa according to World He Organization		Theoretical-practical	test
٦	٢	The main cause food disea microbiological, chemical physical ri contamination, c contamination, primary secondary f pollution		Theoretical-practical	test
٧	٢	Mid-term Exam		Theoretical-practical	test
8	٢	Unsafe food for health		Theoretical-practical	test

٩	٢	Food Safety Con		Theoretical-practical	test
١٠	٢	Management of f products, G Production Practices, G Agricultural Practices, G Hygienic Practic		Theoretical-practical	discussion
11	٢	The importance of sanitation, sterilization, disinfection, deratization in Food Safety		Theoretical-practical	discussion
١٢	٢	Food hygiene Cooling of fo Food process Packaging, Labeling, Declaration, Transportation.		Theoretical-practical	discussion
١٣	٢	Personal hygiene staff, hyg facilities where f is produced processed		Theoretical-practical	discussion
14	٢	Food storage		Theoretical-practical	discussion
١٥	٢	Food storage		Theoretical-practical	discussion

١١-

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricu books, if any)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A., & Detrick F Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). *Jawetz, Melnic Adelberg's Medical Microbiology*, ٢٨*e*. McGraw https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&sectionid=٢١٧٧٦٨
Main references (sources)	*Robinson, Richard K.. "Dairy microbiology handbook: the microbiology of milk and products." (٢٠٠٥).*
Recommended books and references (scientific journals, reports…)	Riedel S, & Hobden J.A., & Miller S, & Morse S.A., & Mietzner T.A., & Detrick F Mitchell T.G., & Sakanari J.A., & Hotez P, & Mejia R(Eds.), (٢٠١٩). *Jawetz, Melnic Adelberg's Medical Microbiology*, ٢٨*e*. McGraw https://accesspharmacy.mhmedical.com/content.aspx?bookid=٢٦٢٩&sectionid=٢١٧٧٦٨

Electronic References, Websites	

Course Description Form

١-Course Name: Nutrition and genetics
٢-Course Code: FHN٣٥٠٢٥
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦
٧-Course administrator's name (mention all, if more than one name)
Name: Dr. Rabab Jawad Hassen Al Hassany Email:

٨–Course Objectives	
- The student learns about the importance of analytical chemistry and its types. - The student learns the methods of finding concentrations of chemicals and the types of chemical titration. - The student learns the basic principles of quantitative and qualitative analysis methods in analytical chemistry.	• ..... • ..... • .....

٩–Teaching and Learning Strategies	
Strategy	٥- Lectures ٦- Discussion ٧- Brainstorming Problem solving ٨- Practical presentations& Simulation Method

	٩- Lab works(Practical in computer Lab ١٠- Projects Self-learning ١١-Cooperative Learning.

١٠–Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	**Introduction**		Theoretical-practical	test
٢	٢	**DNA and R structure**		Theoretical-practical	test
٣		**Chromosome structure**		Theoretical-practical	test
٤	٢	**nutrigenetics**		Theoretical-practical	test
٥	٢	**Effect of the nutrit on genome**		Theoretical-practical	test
٦	٢	**Effect of the nutrit on Epigenetics**		Theoretical-practical	test
٧	٢	**Effect of the nutrit on histone**		Theoretical-practical	test
8	٢	**Effect of carbohydrate genome**		Theoretical-practical	test
٩	٢	**Examination١**		Theoretical-practical	test
١٠	٢	**Effect of the porti on genome**		Theoretical-practical	discussion
11	٢	**Effect of the fat on genome**		Theoretical-practical	discussion
١٢	٢	**Food Mutagens**		Theoretical-practical	discussion

١٣	٢	**Food carcinogenic**		Theoretical-practical	discussion
14	٢	**Effect of the genc on select food**		Theoretical-practical	discussion
١٥	٢	**Examination٢**		Theoretical-practical	discussion

١١–Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢–Learning and Teaching Resources

Required textbooks (curricular books any)	**MOLECULAR BASIS OF NUTRITION AND AGING** **A Volume in the Molecular Nutrition Series MAR MALAVOLTA(٢٠١٠)**
Main references (sources)	**NUTRIGENETICS.٢٠١٠الخفاجي محمود زهرة**
Recommended books and references (scientific journals, reports…)	**MOLECULAR BASIS OF NUTRITION AND AGING** **A Volume in the Molecular Nutrition Series MAR MALAVOLTA(٢٠١٠)**
Electronic References, Websites	https://en.wikipedia.org/wiki/Analytical_chemistry

Course Description Form

١-Course Name: Recycling and processing food factory waste

٢-Course Code: UoB١٢٣٤٥

٣-Semester / Year:second

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Dr.haneen Abdul Ameer Lateef
Email:

٨–Course Objectives

١- Reducing environmental pollution: The use of materials again reduces the resulting waste that leads to pollution of the globe, and thus reduces environmental pollution in a direct way. ٢- Reducing marine pollution: by reducing the liquid, solid and gaseous industrial waste that factories and individuals dispose of towards the seas, oceans and rivers, it reduces the exposure of these water bodies to pollution, thus preserving the life of the organisms that live in them and increasing the opportunity to use the water of rivers and streams as a source of drinking water. . ٣- Reducing air pollution: by reducing the gaseous emissions that industries produce daily by recycling these gases in various ways, and thus reduces air pollution and maintains the main air composition as it is, thus reducing human exposure to diseases that result from that pollution, especially materials toxic. ٤- Achieving sustainability: Reducing the use of raw materials and the factories' need for them from nature. This leads to ensuring the share of future generations of those natural materials, and thus directly achieving the concept of sustainable development. - ٥- Reducing the required energy: Reusing various resources as energy sources leads to a reduction in the amount of energy used.	• ..... • ..... • .....

٩–Teaching and Learning Strategies

Strategy	The main strategy that will be adopted in delivering this module is encourage students' participation in the exercises, while at the same ti refining and expanding their critical thinking skills. This will be achiev

	through classes, interactive tutorials and by considering types of sim experiments involving some sampling activities that are interesting to t students

١٠–Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	An introduction to f factory waste methods of recycling		Theoretical-practical	test
٢	٢	Dangers arising from accumulation of f processing waste		Theoretical-practical	test
٣		Benefit from f processing waste		Theoretical-practical	test
٤	٢	Types of food proces waste		Theoretical-practical	test
٥	٢	Recycling and treatn of dairy industry wast		Theoretical-practical	test
٦	٢	By-products of the d industry		Theoretical-practical	test
٧	٢	Mid-term Exam		Theoretical-practical	test
8	٢	Whey waste resul from the manufactur cheese		Theoretical-practical	test
٩	٢	Milk churning residue		Theoretical-practical	test
١٠	٢	Recycling and treatn of waste resulting f the processing vegetables and fruits		Theoretical-practical	discussion
11	٢	Recycling and treatment of waste resulting from grain processing		Theoretical-practical	discussion
١٢	٢	Recycling and treatn of waste resulting f the manufacture of su		Theoretical-practical	discussion
		Recycling and treatn		Theoretical-	discussion

١٣	٢	of waste resulting f meat slaughterhouses		practical	
14	٢	Recycling and treatn of waste resulting f fish processing		Theoretical-practical	discussion
١٥	٢	The use of f processing waste in production of biofuels		Theoretical-practical	discussion

١١–Course Evaluation
٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢–Learning and Teaching Resources	
Required textbooks (curricular books any)	Residues from the dairy industry and soybean milk, their uses and health bene by Dr. Nadia Abdel Majeed Abu Zaid ٢٠١١
Main references (sources)	International Conference on: "New Role for the World Sugar Economy Changed Political and Economic Environment ٢٠١٢"
Recommended books and references (scientific journals, reports…)	Residues from the dairy industry and soybean milk, their uses and health bene by Dr. Nadia Abdel Majeed Abu Zaid ٢٠١١
Electronic References, Websites	

Course Description Form

١-Course Name: Recycling and processing food factory waste
٢-Course Code: UoB١٢٣٤٥
٣-Semester / Year:second
٤-Description Preparation Date:٣٠ /٤/٢٠٢٤
٥-Available Attendance Forms: class
٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦
٧-Course administrator's name (mention all, if more than one name)

Name: Dr.haneen Abdul Ameer Lateef
Email:

٨-Course Objectives

١- Reducing environmental pollution: The use of materials again reduces the resulting waste that leads to pollution of the globe, and thus reduces environmental pollution in a direct way.

٢- Reducing marine pollution: by reducing the liquid, solid and gaseous industrial waste that factories and individuals dispose of towards the seas, oceans and rivers, it reduces the exposure of these water bodies to pollution, thus preserving the life of the organisms that live in them and increasing the opportunity to use the water of rivers and streams as a source of drinking water. .

٣- Reducing air pollution: by reducing the gaseous emissions that industries produce daily by recycling these gases in various ways, and thus reduces air pollution and maintains the main air composition as it is, thus reducing human exposure to diseases that result from that pollution, especially materials toxic.

٤- Achieving sustainability: Reducing the use of raw materials and the factories' need for them from nature. This leads to ensuring the share of future generations of those natural materials, and thus directly achieving the concept of sustainable development.

- ٥- Reducing the required energy:
  Reusing various resources as energy sources leads to a reduction in the amount of energy used.

- .....
- .....
- .....

٩-Teaching and Learning Strategies

Strategy	The main strategy that will be adopted in delivering this module is

	encourage students' participation in the exercises, while at the same ti refining and expanding their critical thinking skills. This will be achiev through classes, interactive tutorials and by considering types of sim experiments involving some sampling activities that are interesting to t students

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	An introduction to f factory waste methods of recycling		Theoretical-practical	test
٢	٢	Dangers arising from accumulation of f processing waste		Theoretical-practical	test
٣		Benefit from f processing waste		Theoretical-practical	test
٤	٢	Types of food proces waste		Theoretical-practical	test
٥	٢	Recycling and treatn of dairy industry wast		Theoretical-practical	test
٦	٢	By-products of the d industry		Theoretical-practical	test
٧	٢	Mid-term Exam		Theoretical-practical	test
8	٢	Whey waste resul from the manufactur cheese		Theoretical-practical	test
٩	٢	Milk churning residue		Theoretical-practical	test
١٠	٢	Recycling and treatn of waste resulting f the processing vegetables and fruits		Theoretical-practical	discussion
11	٢	Recycling and treatment of waste resulting from grain processing		Theoretical-practical	discussion
		Recycling and treatn of waste resulting f		Theoretical-	discussion

١٢	٢	the manufacture of su		practical	
١٣	٢	Recycling and treatn of waste resulting f meat slaughterhouses		Theoretical-practical	discussion
14	٢	Recycling and treatn of waste resulting f fish processing		Theoretical-practical	discussion
١٥	٢	The use of f processing waste in production of biofuels		Theoretical-practical	discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricular books any)	Residues from the dairy industry and soybean milk, their uses and health bene by Dr. Nadia Abdel Majeed Abu Zaid ٢٠١١
Main references (sources)	International Conference on: "New Role for the World Sugar Economy Changed Political and Economic Environment ٢٠١٢"
Recommended books and references (scientific journals, reports…)	Residues from the dairy industry and soybean milk, their uses and health bene by Dr. Nadia Abdel Majeed Abu Zaid ٢٠١١
Electronic References, Websites	

Course Description Form

١-Course Name: Emerging technologies in food processing

٢-Course Code: FHN٤٨٠٣٩

٣-Semester / Year:second

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Dr.haneen Abdul Ameer Lateef
Email:

٨-Course Objectives

١-One of the main advantages of food processing technologies ٢-To understand who can help extend the shelf life of food products. ٣-To Know what means that food can be stored for more extended periods without spoiling - ٤-To figure food processing can also help improve food safety by reducing the risk of contamination	• ..... • ..... • .....

٩-Teaching and Learning Strategies

Strategy	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	Introduction :High Press Processing of Foods		Theoretical-practical	test
٢	٢	Pulsed Electric F Processing for Food		Theoretical-practical	test
٣		Other Non-ther Processing Techniq Developments in Osm Dehydration		Theoretical-practical	test
٤	٢	Non-thermal Processing Radio Frequency Elec Fields		Theoretical-practical	test
		Application of Ultrasound		Theoretical-practical	test

٥	٢				
٦	٢	Irradiation of Foods		Theoretical-practical	test
٧	٢	Mid-term Exam		Theoretical-practical	test
8	٢	New Chemical Biochemical Hurdles		Theoretical-practical	test
٩	٢	Recent Developments Microwave Heating		Theoretical-practical	test
١٠	٢	Radio-Frequency Processi		Theoretical-practical	discussion
11	٢	Ohmic Heating		Theoretical-practical	discussion
١٢	٢	Combined Microw Vacuuum-drying		Theoretical-practical	discussion
١٣	٢	Innovations in F Refrigeration: Vacuum Coo of Foods and High-Press Freezing		Theoretical-practical	discussion
14	٢	Introduction Nanotechnology in Food Dairy Science		Theoretical-practical	discussion
١٥	٢	٣D printing f manufacturing		Theoretical-practical	discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricular books any)	Residues from the dairy industry and soybean milk, their uses and health bene by Dr. Nadia Abdel Majeed Abu Zaid ٢٠١١
Main references (sources)	International Conference on: "New Role for the World Sugar Economy Changed Political and Economic Environment ٢٠١٢"
Recommended books and references (scientific journals, reports…)	Residues from the dairy industry and soybean milk, their uses and health bene by Dr. Nadia Abdel Majeed Abu Zaid ٢٠١١
Electronic References, Websites	

Course Description Form

١-Course Name: Food Poisoning

٢-Course Code: FHN٤٨٠٣٨

٣-Semester / Year:second

٤-Description Preparation Date:٣٠ /٤/٢٠٢٤

٥-Available Attendance Forms: class

٦-Number of Credit Hours (Total) / Number of Units (Total):١٥٠/٦

٧-Course administrator's name (mention all, if more than one name)

Name: Asst.Prof. Dr. Ali R. Mulakhudair

Email:

٨–Course Objectives

١. Define the microbial toxicology
٢. Familiar with microorganisms produced toxins
٣. Differentiate between chemical toxins and biological toxins
٤. Compare between Endotoxins and Exotoxins
٥. Diagnose the symptoms of bacterial toxins and mycotoxins
٦. list the types of bacterial and mycotoxins
٧. write briefly the structure of any microbial toxin
٨. Discuss the mechanism action of any toxin
٩. Describe the detoxification methods of the microbial toxins
- List the method used for assaying the bacterial and myco-toxins

- .....
- .....
- .....

٩–Teaching and Learning Strategies

Strategy	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.

١٠-Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢	An overview to micro toxins in food		Theoretical-practical	test
٢	٢	Part ١: Food poisoning toxins		Theoretical-practical	test
٣		Staphylococcal f positioning		Theoretical-practical	test
٤	٢	Botulism food positioning		Theoretical-practical	test
٥	٢	Perfringens food positionir		Theoretical-practical	test
٦	٢	*Escheichia coli* f positioning		Theoretical-practical	test
٧	٢	Mid-term Exam		Theoretical-practical	test
8	٢	*Bacillus cereus* f positioning		Theoretical-practical	test
٩	٢	Part ٢: Food poisoning infections		Theoretical-practical	test
١٠	٢	Salmonellosis		Theoretical-practical	discussion
11	٢	Campylobacteriosis		Theoretical-practical	discussion
١٢	٢	Virbriosis		Theoretical-practical	discussion

١٣	٢	Yersinosis		Theoretical-practical	discussion
14	٢	Food poisoning Mycotoxins		Theoretical-practical	discussion
١٥	٢			Theoretical-practical	discussion

١١-Course Evaluation

٣٠therotical test ١٠ practical test ١٠ report و ٣٥ therotical final test ١٥ practical final test

١٢-Learning and Teaching Resources

Required textbooks (curricular books any)	١- Microbial Toxins: Structure and Their Type Paperback – April ١٧, ٢٠١١ by Rajeeva Gaur (Author), Soni Tiwari (Author), Ranjan Singh (Author)
Main references (sources)	١- Microbial Toxins: Current Research and Future Trends by Thomas Proft (Editor), Publisher: Caister Academic Press (April ١٤, ٢٠٠٩)
Recommended books and references (scientific journals, reports…)	١- Microbial Toxins: Structure and Their Type Paperback – April ١٧, ٢٠١١ by Rajeeva Gaur (Author), Soni Tiwari (Author), Ranjan Singh (Author)
Electronic References, Websites	