Republic of Iraq Ministry of Higher Education & Scientific Research Supervision and Scientific Evaluation Directorate Quality Assurance and Academic Accreditation

Academíc Program Specífication Form For The Academíc

University: Anbar College : Education for women Department : Chemistry Date Of Form Completion : 12/10/2021

Dean's Name Prof.Dr.Nasra H.

Jadwa

Date :

Signature

Dean's Assistant For Scientific Affairs Asst. Prof. Dr. Firas F. Ali

Date: /

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Director of the Quality Assurance and University Performance Division Prof.Dr. Ahmed Abdel Sattar Shailal Date:

Quality Assurance And University Performance

ManagerDate :/ Sígnature *Republic of Iraq Ministry of Higher Education & Scientific Research Supervision and Scientific Evaluation Directorate Quality Assurance and Academic Accreditation*

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TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	Education college for women				
2. University Department/Centre	Department of Chemistry				
3. Programme Title	Analytical Chemistry				
4. Title of Final Award	Bachelor of chemistry				
5. Modes of Attendance offered					
6. Accreditation	Bachelor				
7. Other external influences					
8. Date of production/revision of	1/10/2021				
this specification					
9. Aims of the Programme					
1.develop depth and breadth of cher	nistry knowledge,				
2. develop a wide range of laboratory and analytical skills,					
3. develop enhanced problem solving, research and communication skills.					
4. know of volumetric analysis.					
5. know of instrumental analysis					

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1. Knowledge of the major aspects of chemical terminology and vocabulary

A2. Knowledge and understanding of fundamental physicochemical principles

A3. Knowledge of a range of inorganic and organic materials

A4. Understanding of general synthetic pathways, including related isolation, purification and characterisation techniques

A5. Awareness of issues within chemistry that overlap with other related disciplines

A6. Knowledge of selected aspects of chemistry at the forefront of the discipline

B. Subject-specific skills

B1. Demonstrate skills in the safe-handling of chemical materials, taking into account their physical and chemical properties including any specific hazards associated with their use.

B2. Conduct risk assessment

B3. Operate standard chemical instrumentation

Teaching and Learning Methods

- 1. Lectures.
- 2. Worksheets.
- 3. Laboratory activities.

Assessment methods

- 1. Daily exams.
- 2. Monthly exams.
- 3. Practical;
- 4. Final exams.
- C. Thinking Skills

C1. The ability to distinguish between qualitative and quantitative analysis. C2. The ability to distinguish between volumetric and gravimetric analysis. C3. The ability to distinguish between classical and instrumental methods.

Teaching and Learning Methods

Assessment methods

 D. General and Transferable Skills (other skills relevant to employability and personal development) Communicate information, ideas, problems, and solutions to both specialist and non-specialist audiences orally and in writing Demonstrate problem-solving skills, relating to qualitative and quantitative information Demonstrate numeracy and mathematical skills, including such aspects as error analysis, order-of- magnitude estimations, correct use of units and modes of data presentation Retrieve and cite information, in relation to primary and secondary information sources, including retrieval of information through online computer searches. 									
Teachir	ng and Learnin	ng Methods							
Assessr	nent Methods								
11. Program	me Structure								
Level/Year	Course or Module Code	Course or Module Title	Credit rating	12. Awards and Credits					
1/1		Analytical chemistry level 1	2 theoretical 3 practical	Bachelor Degree Requires (x) credits					

13. Personal Development Planning
14. Admission criteria.
15. Key sources of information about the programme

	Curriculum Skills Map																		
	please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																		
								P	rogra	mme	Learı	ning O	utcon	nes					
Year/ Level	Course Code	Course Title	Core (C) Title or Option (O)	K ı	Knowledge and understanding		S	ubjec sl	t-speci tills	fic]	Fhinkin	ig Skill	ls	Gen Sk relev and	eral and ills (or) (vant to en personal	Transfer Other ski mployab develop	able ills oility ment	
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
1/1		Analytical chemistry	С	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Education college for women					
2. University Department/Centre	Department of chemistry					
3. Course title/code	Analytical chemistry					
4. Programme(s) to which it contributes	Bachelor of chemistry					
5. Modes of Attendance offered						
6. Semester/Year	First semester / first year					
7. Number of hours tuition (total)	5 hours (2 theoretical + 3 practical					
8. Date of production/revision of this specification	1/10/2021					
9. Aims of the Course						
1.develop depth and breadth of chemistry knowledge,						

2. develop a wide range of laboratory and analytical skills,

3. develop enhanced problem solving, research and communication skills.

4. know of volumetric analysis.

5. know of instrumental analysis

10. Learning Outcomes, Teaching ,Learning and Assessment Methode
A- Knowledge and Understanding A1. A2. A3. A4. A5. A6.
B. Subject-specific skills B1. B2. B3.
Teaching and Learning Methods
Assessment methods
C. Thinking Skills C1. C2. C3. C4.
Teaching and Learning Methods
Assessment methods

D. General and Transferable Skills (other skills relevant to employability and personal development) D1. D2. D3. D4.

11. Course Structure								
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method			

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures, internship, field studies)	

13. Admissions						
Pre-requisites						
Minimum number of students						
Maximum number of students						

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Ministry of Higher Education and Scientific
	Kesearch
2 University Department/Centre	College of Education For Women/
2. Oniversity Department/Centre	University of Anbar
3. Course title/code	Chemistry
4. Programme(s) to which it contributes	Google classroom, Google Meet
5. Modes of Attendance offered	Electronic lectures
6. Semester/Year	First stage
7. Number of hours tuition (total)	90
8. Date of production/revision of this	10/10/2021
specification	
9. Aims of the Course	

Understanding The concept of organic chemistry with a profile of organic compounds in general.

Understanding The concept of saturated and unsaturated organic compounds, recognizing the concept of alkanes, hybridization, naming, methods of preparation and reactions.

Identify, hybridize, name and identify Cis and trans isomers and its methods of preparation and reactions

10. Learning Outcomes, Teaching ,Learning and Assessment Methode A- Knowledge and Understanding A1. The ability to name different types of alkanes A2. The ability to communicate A3. The ability to evaluate correctly A4. The ability to make proposals and solve problems A5. The ability to conclude and compare A6. B. Subject-specific skills B1. The ability to make proposals and solve problems B2. The ability to conclude and compare B3. Teaching and Learning Methods Electronic lectures using Google Meet Assessment methods 1 Midterm exam 2 Electronic activity 3 Electronic practical exam 4 Electronic oral exam 5 Final attendance exam C. Thinking Skills C1. The ability to make proposals and solve problems C2. The ability to conclude and compare C3. C4. **Teaching and Learning Methods** Electronic lectures Assessment methods Electronic exams and Oral Exams

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Hand lability of work environment problems
D2. Correct discrimination of problems and the ability to find solutions to them
D3. Setting appropriate business standards

D4.

11. Cou	11. Course Structure							
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method			
1	2		Learn about the meaning and classifications of organic chemistry	Electronic lectures	Exam+ activity			
2	2		Knowing and naming Alkanes	Electronic lectures	Exam+ activity			
3	2		Additional examples of the label of Alkanes	Electronic lectures	Exam+ activity			
4	2		Methods of preparation and reactions of Alkanes	Electronic lectures	Exam+ activity			
5	2		Knowing and naming Alkenes	Electronic lectures	Exam+ activity			
6	2		Additional examples of Alkenes naming	Electronic lectures	Exam+ activity			
7	1		First month's electronic exam					
8	2		Alkenes preparation methods	Electronic lectures	Exam+ activity			
9	2		Alkenes reactions	Electronic lectures	Exam+ activity			
10	2		Dienes	Electronic lectures	Exam+ activity			
11	2		Nomenclature of dienes	Electronic lectures	Exam+ activity			
12	2		Preparation of dienes and reactions	Electronic lectures	Exam+ activity			

13	2	Second month exam Oral exam	

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions		
Pre-requisites		
Minimum number of students		
Maximum number of students		

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Ministry of Higher Education and Scientific Research
2. University Department/Centre	College of Education For Women/ University of Anbar
3. Course title/code	Chemistry
4. Programme(s) to which it contributes	Google classroom, Google Meet
5. Modes of Attendance offered	Electronic lectures
6. Semester/Year	Second stage
7. Number of hours tuition (total)	90
8. Date of production/revision of this specification	10/10/2021
9. Aims of the Course	

Understanding the meaning of Amines and their derivatives, understanding carboxylic acids and their derivatives, understanding ketones, aldehydes and phenols, their nomenclatures, their reactions and preparations.

10. Learning Outcomes, Teaching ,Learning and Assessment Methode
A- Knowledge and Understanding A1. The ability to distinguish between primary, secondary and third Amines A2. The ability to distinguish between Aldehydes and ketones A3. The Ability to separate esters and carboxyl acids A4. A5. A6.
 B. Subject-specific skills B1. The ability to make proposals and solve problems B2. The ability to conclude and compare B3.
Teaching and Learning Methods
Assessment methods
1 Midterm exam
2 Electronic activity 3 Electronic practical exam
4 Electronic oral exam
5 Final attendance exam
C. Thinking Skills C1. C2. C3. C4.
Teaching and Learning Methods
Assessment methods

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Hand lability of work environment problems
D2. Correct discrimination of problems and the ability to find solutions to them

D3. Setting appropriate business standards

D4.

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4		Carboxylic acids, their names, preparation methods and their interactions	Electronic lectures	Exam+ activity
2	4		Dicarboxylic acids and their names, methods of preparation and reactions	Electronic lectures	Exam+ activity
3	4		Methods of preparing carboxylic acid derivatives	Electronic lectures	Exam+ activity
4	4		The reactions of carboxylic acid derivatives	Electronic lectures	Exam+ activity
5	4		Phenols and how to name the compounds derived from them	Electronic lectures	Exam+ activity
6	4		Methods of preparation of phenols and their interactions	Electronic lectures	Exam+ activity
7	4		audit		
8	4		first month exam		
9	4		Aldehydes, their names and methods of preparation	Electronic lectures	Exam+ activity
10	4		Aldehydes reactions	Electronic lectures	Exam+ activity
11	4		Ketones, their name, how to prepare them	Electronic lectures	Exam+ activity
12	4		ketone interactions	Electronic lectures	Exam+ activity
13			Amines, their interactions, methods of preparation,	Electronic lectures	Exam+ activity
14			audit		
15			second month exam		

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions		
Pre-requisites		
Minimum number of students		
Maximum number of students		

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Ministry of Higher Education and Scientific Research
2. University Department/Centre	College of Education For Women/
3 Course title/code	Chemistry
4. Programme(s) to which it contributes	Google classroom, Google Meet
	Electronic lectures
5. Modes of Attendance offered	
6. Semester/Year	First stage
7. Number of hours tuition (total)	90
8. Date of production/revision of this specification	10/10/2021
9. Aims of the Course	

Understanding The concept of unsaturated organic compounds and the knowledge of the Alkynes and their naming and methods of preparation and interactions

Learn how to prepare different compounds from other compounds Learn about the meaning and concept of aromatic compounds and the rules for identifying aromatic compounds

10. Learning Outcomes, Teaching ,Learning and Assessment Methode A- Knowledge and Understanding A1. The ability to name different types of alkynes A2. The ability to communicate A3. The ability to evaluate correctly A4. The ability to make proposals and solve problems A5. The ability to conclude and compare A6. B. Subject-specific skills B1. The ability to make proposals and solve problems B2. The ability to conclude and compare B3. Teaching and Learning Methods Electronic lectures using Google Meet Assessment methods 1 Midterm exam 2 Electronic activity 3 Electronic practical exam 4 Electronic oral exam 5 Final attendance exam C. Thinking Skills C1. The ability to make proposals and solve problems C2. The ability to conclude and compare C3. C4. **Teaching and Learning Methods** Electronic lectures Assessment methods Electronic exams and Oral Exams

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Hand lability of work environment problems
D2. Correct discrimination of problems and the ability to find solutions to them

D3. Setting appropriate business standards

D4.

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2		Review the alkenes and get into the subject of the alkynes	Electronic lectures	Exam+ activity
2	2		Naming alkynes and ways to prepare them	Electronic lectures	Exam+ activity
3	2		Alkynes reactions	Electronic lectures	Exam+ activity
4	2		How to prepare halides and their interactions	Electronic lectures	Exam+ activity
5	2		Knowing and naming Alkenes	Electronic lectures	Exam+ activity
6	1		First month's electronic exam		
7	2		Cycloalkanes	Electronic lectures	Exam+ activity
8	2		Aromatic compounds	Electronic lectures	Exam+ activity
9	2		Benzene and the naming of its derivatives	Electronic lectures	Exam+ activity
10	2		Methods of preparing benzene derivatives	Electronic lectures	Exam+ activity
11	2		Examples of the preparation of different compounds	Electronic lectures	Exam+ activity
13	2		Second month exam Oral exam		

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions		
Pre-requisites		
Minimum number of students		
Maximum number of students		

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Ministry of Higher Education and Scientific Research
2. University Department/Centre	College of Education For Women/ University of Anbar
3. Course title/code	Chemistry
4. Programme(s) to which it contributes	Google classroom, Google Meet
5. Modes of Attendance offered	Electronic lectures
6. Semester/Year	Third stage
7. Number of hours tuition (total)	90
8. Date of production/revision of this specification	1/10/2021
9. Aims of the Course	

Course objectives:

Identify industry and types of industries in terms of origin and nature, learn about raw materials, learn about industrial chemistry and its branches, in addition to identifying the preparation of many compounds (oils, soap, glass, ceramics, cement and fertilizers)

Ø

10. Learning Outcomes, Teaching ,Learning and Assessment Methode
A- Knowledge and Understanding A1. The ability to distinguish between primary, secondary and third Amines A2. The ability to distinguish between Aldehydes and ketones A3. The Ability to separate esters and carboxyl acid
B. Subject-specific skills B1. The ability to make proposals and solve problems B2. The ability to conclude and compare
Teaching and Learning Methods
Electronic lectures using Google Meet
Assessment methods
 Midterm exam Electronic activity Electronic practical exam Electronic oral exam Final attendance exam
 C. Thinking Skills C1: The ability to identify different types of industries C2: Ability to calculate profitability value for various industries C3: The ability to distinguish between types of glass by the characteristics of each type C4: The ability to distinguish between types of cement by knowing the characteristics of each type C5: The ability to distinguish between types of fertilizers by knowing the characteristics of each type
Teaching and Learning Methods
Assessment methods

D. General and Transferable Skills (other skills relevant to employability and personal development)
D.1 Ability to deal with problems facing the industry
D.2 Correct identification of corrosion problems and ways to eliminate them
D.3 Evaluate, use and improve work mechanisms

D.4 Determining appropriate work standards in order to establish a successful industry

10. Cou	rse Structure				
Week	Hours	ILO s	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4		industrial chemistry	Electronic lectures	Exam+ activity
2	4		Raw materials and their types and branches of industrial chemistry	Electronic lectures	Exam+ activity
3	4		Industrial Economics and Profit Value Calculation	Electronic lectures	Exam+ activity
4	4		Industrial processes in the chemical industry	Electronic lectures	Exam+ activity
5	4		Transportation, cutting, crushing and grinding operations, separation operations, extraction process	Electronic lectures	Exam+ activity
6	4		Crystallization process, filtration process and adsorption process	Electronic lectures	Exam+ activity
7	4		The absorption process, the distillation process, the drying process, the mixing process, and the evaporation process, industrial chemical terms		Exam+ activity
8	4		first month exam	Electronic lectures	Exam+ activity
9	4		Polymer Chemistry, Classification of Polymers	Electronic lectures	Exam+ activity
10	4		Basic properties of inorganic polymers	Electronic lectures	Exam+ activity
11	4		Synthesis of polymers and methods for finding molecular weight		Exam+ activity
12	4		Fats, types of oils, a history of oils, sources and benefits of oils, composition of oils	Electronic lectures	Exam+ activity
13	4		Sections of fatty acids, methods of preparing fatty acids, rancidity of oils, hydrogenation of oils	Electronic lectures	Exam+ activity
14	4		Soap, theories that explain the work of soap,	Electronic	Exam+ activity

		raw materials for the manufacture of soap	lectures	
15	4	Raw materials for soap making, soap making methods, general notes for soap making from a scientific point of view	Electronic lectures	Exam+ activity
16	4	Cold process soap, semi- hot soap making, hot process soap, general characteristics of soap		Exam+ activity
17	4	second month exam	Electronic lectures	Exam+ activity

12. Infrastructure	
Required course books:	Industrial chemistry book, written by Dr. Jawad Kazem, Dr. Salwa Abdel Qader Industrial chemistry and its raw materials, written by Dr. Ali Falih Ajam and Dr. Nabil Muhammad Ali Industrial Chemistry Written by Tariq Ismail Kakhia
Main references (sources)	Book of industrial chemistry, industrial and its raw materials
Community-based facilities (include for example, guest Lectures, internship, field studies)	scientific researches

13. Admissions		
Pre-requisites		
Minimum number of students		
Maximum number of students		

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Anbar University
2. University Department/Centre	Education college for women
3. Course title/code	Biochemistry
4. Programme(s) to which it contributes	Bachelor of chemistry
5. Modes of Attendance offered	
6. Semester/Year	First semester/ third year
7. Number of hours tuition (total)	60
8. Date of production/revision of this specification	1/10/2021
9. Aims of the Course	

Introducing the basic components of the body from carbohydrates, fats, proteins and nucleic acids. In addition to studying the types of vitamins and the daily need for them, as well as the sources of obtaining them.

10. Learning Outcomes, Teaching ,Learning and Assessment Methode:
Lectures and worksheets
A- Knowledge and Understanding A1. A2. A3. A4. A5. A6.
B. Subject-specific skills B1. B2. B3.
Teaching and Learning Methods:
Use the discussion method and ask questions
Assessment methods
Exams Quizzes Oral Reports
C. Thinking Skills C1. C2. C3. C4.
Teaching and Learning Methods:
Use the discussion method and ask questions
Assessment methods

D. General and Transferable Skills (other skills relevant to employability and personal development) D1. D2. D3.

D4.

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teachin g Method	Assessm ent Metho d
1	4		carbohydrate	lectures	Exam and quizes
2	4		Optical activity	lectures	Exam and quizes
3	4		disaccharides	lectures	Exam and quizes
4	4		Polysaccharides	lectures	Exam and quizes
5	4		Test's for sacchrides	lectures	Exam and quizes
6	4		Amino acids	lectures	Exam and quizes
7	4		peptides	Lectures	Exam and quizes
8	4		Chemical properties for amino acids proteins	lectures	Exam and quizes
9	4		Test's for lipids	lectures	Exam and quizes
10	4		enzymes	lectures	Exam and quizes
12	4		Water soluble	lectures	Exam and quizes
13	4		Fat soluble vitamine	lectures	Exam and quizes
14	4		Nucleic acids	lectures	Exam and quizes
12. Infrastructure					

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	

Community-based facilities (include for example, guest Lectures , internship , field studies)	
13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Education for Women
2. University Department/Centre	Department of Chemistry
3. Course title/code	Biochemistry
4. Programme(s) to which it contributes	Bachelor of Chemistry
5. Modes of Attendance offered	
6. Semester/Year	First semester/ Fourth Year
7. Number of hours tuition (total)	5 hours (2 theoretical + 3 Practical)
8. Date of production/revision of this Specification	8-10-2021
9. Aims of the Course	

10. Learning Outcomes, Teaching ,Learning and Assessment Methode
 A- Knowledge and Understanding A1. To familiarize the student with the concept of biochemistry A2. The student will know how the body can made compounds and can get to energy. A3. Understand the methods of the energy source.
B. Subject-specific skills
Teaching and Learning Methods
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities
Assessment methods
 1- Daily paper and oral exams (5%). 2- The monthly paper exams (20%). 3- Reports on topics related to the given theoretical material (5%). 4- Practical (10%). 5- The final theoretical exam (50%). 6- Final practical exam (10%). C. Thinking Skills C1. C2. C3
C4.
Teaching and Learning Methods
 Lectures Worksheets Submitting studies from the Internet Use of computers and their accessories Laboratory activities
Assessment methods
 Daily paper and oral exams (5%). The monthly paper exams (20%). Reports on topics related to the given theoretical material (5%). Practical (10%). The final theoretical exam (50%). Final practical exam (10%).

- D. General and Transferable Skills (other skills relevant to employability and personal development)
 D1. Ability to work with information sources and biochemistry books
 D2. The ability to distinguish between carbohydrate metabolism and lipids in

 - terms of different properties
 - D3. The ability to know the compounds of each pathway.
 - D4. The ability to know the different compounds of different pathways and how to distinguish between them

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	knowledge and understanding	Carbohydrate digestion	Lectures and the use of computers and accessories	Electronic, oral and practical exams
2	2	knowledge and understanding	Glycolysis	Lectures and the use of computers and accessories	Electronic, oral and practical exams
3	2	knowledge and understanding	Fate of carbohydrate	Lectures and the use of computers and accessories	Electronic, oral and practical exams
4	2	knowledge and understanding	Krebs cycle	Lectures and the use of computers and accessories	Electronic, oral and practical exams
5	2	knowledge and understanding	Phosphogluconate pathway	Lectures and the use of computers and accessories	Electronic, oral and practical exams
6	2	knowledge and understanding	Oxidative phosphorylation	Lectures and the use of computers and accessories	Electronic, oral and practical exams
7	2	knowledge and understanding	First Exam	Lectures and the use of computers and accessories	Electronic, oral and practical exams
8	2	knowledge and understanding	Glycogenolysis	Lectures and the use of computers and accessories	Electronic, oral and practical exams
9	2	knowledge and understanding	Gluconeogenesis	Lectures and the use of computers and	Electronic, oral and practical exams

				accessories	
10	2	knowledge and understanding	Glycogenesis	Lectures and the use of computers and accessories	Electronic, oral and practical exams
11	2	knowledge and understanding	Lipid digestion	Lectures and the use of computers and accessories	Electronic, oral and practical exams
12	2	knowledge and understanding	Metabolism of lipids	Lectures and the use of computers and accessories	Electronic, oral and practical exams
13	2	knowledge and understanding	β-Oxidation	Lectures and the use of computers and accessories	Electronic, oral and practical exams
14	2	knowledge and understanding	Keton bodies	Lectures and the use of computers and accessories	Electronic, oral and practical exams
15	2	knowledge and understanding	Second Exam	Lectures and the use of computers and accessories	Electronic, oral and practical exams

12. Infrastructure				
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	 Fundamentals of Biochemistry. General Biochemistry. Lippincott biochemistry. 			
Special requirements (include for example workshops, periodicals, IT software, websites)	All websites and Software that are interested in biochemistry, metabolism of carbohydrate and lipids.			
Community-based facilities (include for example, guest Lectures , internship , field studies)	All Biochemistry books that deal with the basic concepts of biochemistry.			

13. Admissions		
Pre-requisites		
Minimum number of students		
Maximum number of students		
HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Education for Women
2. University Department/Centre	Department of Chemistry
3. Course title/code	Biochemistry
4. Programme(s) to which it contributes	Bachelor of Chemistry
5. Modes of Attendance offered	On-line (Contraction of the second se
6. Semester/Year	Second semester/ Fourth Year
7. Number of hours tuition (total)	5 hours (2 theoretical + 3 Practical)
8. Date of production/revision of this Specification	8-11-2021
9. Aims of the Course	

10. Learning Outcomes, Teaching ,Learning and Assessment Methode
 B- Knowledge and Understanding A1. To familiarize the student with the concept of biochemistry A2. The student will know how the body can made compounds and can get to energy. A3. Understand the methods of the energy source.
B. Subject-specific skills
Teaching and Learning Methods
 Lectures Worksheets Submitting studies from the Internet Use of computers and their accessories Laboratory activities
Assessment methods
 1- Daily paper and oral exams (5%). 2- The monthly paper exams (20%). 3- Reports on topics related to the given theoretical material (5%). 4- Practical (10%). 5- The final theoretical exam (50%). 6- Final practical exam (10%). C. Thinking Skills C1. C2. C3
C3. C4.
Teaching and Learning Methods
 Lectures Worksheets Submitting studies from the Internet Use of computers and their accessories Laboratory activities
Assessment methods
 Daily paper and oral exams (5%). The monthly paper exams (20%). Reports on topics related to the given theoretical material (5%). Practical (10%). The final theoretical exam (50%). Final practical exam (10%).

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. Ability to work with information sources and biochemistry books
D2. The ability to know the compounds of each pathway .

- D4. The ability to know the different compounds of different pathways and how to distinguish between them

11. Course Structure											
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method						
1	2	knowledge and understanding	Proteins digestion	Lectures and the use of computers and accessories	Electronic, oral and practical exams						
2	2	knowledge and understanding	Proteins catabolism	Proteins catabolism Lectures and the use of computers and accessories							
3	2	knowledge and understanding	metabolism of amino acids	Lectures and the use of computers and accessories	Electronic, oral and practical exams						
4	2	knowledge and understanding	Urea cycle	Lectures and the use of computers and accessories	Electronic, oral and practical exams						
5	2	knowledge and understanding	Glucose-alanine cycle	Lectures and the use of computers and accessories	Electronic, oral and practical exams						
6	2	knowledge and understanding	Amino acids product oxaloacetate	Lectures and the use of computers and accessories	Electronic, oral and practical exams						
7	2	knowledge and understanding	Amino acids product α- ketoglutarate	Lectures and the use of computers and accessories	Electronic, oral and practical exams						
8	2	knowledge and understanding	First Exam	Lectures and the use of computers and accessories	Electronic, oral and practical exams						
9	2	knowledge	Amino acids product	Lectures and	Electronic, oral and						

		and understanding	acetyl-CoA	the use of computers and accessories	practical exams
10	2	knowledge and understanding	Amino acids product succinyl-CoA	Lectures and the use of computers and accessories	Electronic, oral and practical exams
11	2	knowledge and understanding	Protein synthesis	Lectures and the use of computers and accessories	Electronic, oral and practical exams
12	2	knowledge and understanding	Replication and transcription of genetic of genetic information	Lectures and the use of computers and accessories	Electronic, oral and practical exams
13	2	knowledge and understanding	Replication of DNA	Lectures and the use of computers and accessories	Electronic, oral and practical exams
14	2	knowledge and understanding	Genetic mutation and repair	Lectures and the use of computers and accessories	Electronic, oral and practical exams
15	2	knowledge and understanding	Second Exam	Lectures and the use of computers and accessories	Electronic, oral and practical exams

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	 Fundamentals of Biochemistry. General Biochemistry. Lehninger principle of biochemistry 6th edition
Special requirements (include for example workshops, periodicals, IT software, websites)	All websites and Software that are interested in biochemistry, metabolism of carbohydrate and lipids.
Community-based facilities (include for example, guest Lectures , internship , field studies)	All Biochemistry books that deal with the basic concepts of biochemistry.

13. Admissions						
Pre-requisites						
Minimum number of students						
Maximum number of students						

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	College of Education for Women						
2. University Department/Centre	Department of Chemistry						
3. Program Title	Physics						
4. Title of Final Award	Bachelor of Chemistry						
5. Modes of Attendance offered							
6. Accreditation	Bachelor						
7. Other external influences							
8. Date of production/revision of	04-10-2021						
this specification							
9. Aims of the Program							
a- To understand the principles of Pl	hysics						
b- To know how formulate the equat	tions in Physics						
c- Describe the movement of bodies acceleration	c- Describe the movement of bodies and calculate their Displacement, velocity and acceleration						
d- To identify Laws of mechanic wh	ich control our live						
e- Set mathematical models of the re	eal world						

10. Learning Outcomes, Teaching, Learning and Assessment Methods
 A. Knowledge and Understanding A1. To familiarize the student with the concept of physics A2. The student will know how the moving in real world A3. Understand how to make simple assumptions A4. To familiarize the student with the applying the most important laws of physics
 B. Subject-specific skills B1. Ability to solve problems in physics B2. The ability to make connections between mathematics and physics B3. The ability to derive the complex laws in mechanic B4. Decide whether your results make sense, preferably by checking them against
 some real data B5. Make a list of the assumptions you need to make to simplify the situation to the point where you can apply mathematics to it.
Teaching and Learning Methods
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- my youtube Chanel
Assessment methods
 1- Daily paper and oral exams (5%). 2- The monthly paper exams (20%). 3- Reports on topics related to the given theoretical material (5%). 4- Practical (10%). 5- The final theoretical exam (50%). 6- Final practical exam (10%). C. Thinking Skills C1. Ability to work with information sources and physics books C2. The ability Make a list of the quantities involved C3.Set up your equations and solve them
Teaching and Learning Methods
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities
Assessment methods

- 1- Daily paper and oral exams (5%).
- 2- The monthly paper exams (20%).
- 3- Reports on topics related to the given theoretical material (5%).
- 4- Practical (10%).
- 5- The final theoretical exam (50%).
- 6- Final practical exam (10%).

 D. General and Transferable Skills (other skills relevant to employability and personal development) D1. Ability to work with information sources and physics books D2. Make a list of the assumptions you need to make to simplify the situation to the point where you can apply mathematics to it. D3. Make a list of the quantities involved. D4. Find out any information you require such as safe stopping distances or a value for the acceleration D5. Set up your equations and solve them 										
Teaching and Learning Methods										
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities 										
1- Daily 2- The r 3- Repo 4- Pract 5- The f 6- Final	 Daily paper and oral exams (5%). The monthly paper exams (20%). Reports on topics related to the given theoretical material (5%). Practical (10%). The final theoretical exam (50%). Final practical exam (10%). 									
11. Program	me Structure									
Level/Year	Course or Module Code	Course or Module Title	Credit rating	12. Awards and Credits						
2/2	2/2 Physics Level 1 4 theoretical 3 practical Bachelor Degree									

13. Personal Development Planning
14. Admission criteria.
15. Key sources of information about the programme

	Curriculum Skills Map																		
please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																			
				Programme Learning Outcomes															
Year/ Level	Course Code	Course Title	Core (C) Title or Option (O)	K ı	Inowle	edge an standin	nd g	S	Subject-specific skills Thinking Skills			pject-specific skills		General and Transferable Skills (or) Other skills relevant to employability and personal development					
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
2/1		Physics	С		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark		\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark

Teaching and Learning Methods

- **1-** Lectures
- 2-Worksheets
- 3- Submitting studies from the Internet
- 4- Use of computers and their accessories
 - 5- Laboratory activities

Assessment methods

- 1- Daily paper and oral exams (5%).
- 2- The monthly paper exams (20%).
- 3- Reports on topics related to the given theoretical material (5%).
- 4- Practical (10%).
- 5- The final theoretical exam (50%).
 - 6- Final practical exam (10%).
- C. Thinking Skills
- C1. Ability to work with information sources and physics books C2. The ability to distinguish between each group of the periodic table in terms of different properties

C3. The ability to know the elements of each group of the periodic table in order C4. The ability to know the different compounds of different elements and their properties and how to distinguish between them

Teaching and Learning Methods

- **1-** Lectures
- 2-Worksheets
- 3- Submitting studies from the Internet
- 4- Use of computers and their accessories
 - 5- Laboratory activities

Assessment methods

- 1- Daily paper and oral exams (5%).
- 2- The monthly paper exams (20%).
- 3- Reports on topics related to the given theoretical material (5%).
- 4- Practical (10%).
- 5- The final theoretical exam (50%).
 - 6- Final practical exam (10%).

11. Cour	se Structu	ıre			
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	knowledge and understanding	Chapter One: The Movement of objects in real world	Lectures and the use of computers and accessories	Electronic, oral and practical exams
2	2	knowledge and understanding	Chapter Two: Formulate the laws of movement and velocity	pter Two: nulate the laws of rement and velocity computers and accessories	
3	2	knowledge and understanding	Chapter Three: present directional quantities by graph	Lectures and the use of computers and accessories	Electronic, oral and practical exams
4	2	knowledge and understanding	Chapter Four: Acceleration and constant speed	Lectures and the use of computers and accessories	Electronic, oral and practical exams
5	2	knowledge and understanding	Chapter Five: Vertical Moving and ground gravity	Lectures and the use of computers and accessories	Electronic, oral and practical exams
6	2	knowledge and understanding	Boron halides, complex compounds of aluminum	Lectures and the use of computers and accessories	Electronic, oral and practical exams
7	2	knowledge and understanding	Chapter Six: Finding the area under speed– time graphs	Lectures and the use of computers and accessories	Electronic, oral and practical exams
8	2	knowledge and understanding	The constant acceleration formulae	Lectures and the use of computers and accessories	Electronic, oral and practical exams
9	2	knowledge and understanding	Chapter Seven: Forces and Newton's laws of motion	Lectures and the use of computers and accessories	Electronic, oral and practical exams
10	2	knowledge and understanding	Chapter Seven– First Law and its applications	Lectures and the use of computers and accessories	Electronic, oral and practical exams
11	2	knowledge and	Chapter Seven: Second Law and its Application	Lectures and	Electronic, oral and

		understanding		the use of computers and	practical exams
12	2	knowledge and understanding	Chapter Seven: Third law and its application	Lectures and the use of computers and accessories	Electronic, oral and practical exams
13	2	knowledge and understanding	Chapter Seven : Pulley	Lectures and the use of computers and accessories	Electronic, oral and practical exams
14	2	knowledge and understanding	Chapter Seven: Tension And Thurst	Lectures and the use of computers and accessories	Electronic, oral and practical exams
15	2	knowledge and understanding	Chapter Seven:Relating mass and weight	Lectures and the use of computers and accessories	Electronic, oral and practical exams
16	2	knowledge and understanding	Reviewing a mathematical model: air resistance	Lectures and the use of computers and accessories	Electronic, oral and practical exams

12. Infrastructure	
Required reading: • CORE TEXTS • COURSE MATERIALS • OTHER	 Fundamentals of Physics. General Physics. General Concepts in Physics. Duran't General Physics. The Chemistry of Periodic Table Elements.
Special requirements (include for example workshops, periodicals, IT software, websites)	All websites and Software that are interested in physics, elements, chemical compounds and periodic tables of the elements
Community-based facilities (include for example, guest Lectures, internship, field studies)	All physics books that deal with the basic concepts of physics.

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Education for Women
2. University Department/Centre	Department of Chemistry
3. Course title/code	Inorganic Chemistry
4. Programme(s) to which it contributes	Bachelor of Chemistry
5. Modes of Attendance offered	In Class
6. Semester/Year	First semester/ Second Year
7. Number of hours tuition (total)	7 hours (4 theoretical + 3 Practical)
8. Date of production/revision of this Specification	10-10-2021
9. Aims of the Course	·

a- To understand the principles of chemistry

b- To know the elements of the periodic table, their arrangement and distribution in cycles and groups

c- Knowing the properties of the elements, their interactions, the methods of preparing or extracting them, and the form in them on the surface of the Earth

d- To identify the most important compounds of the elements of the periodic table for each of the groups

10. Learning Outcomes, Teaching ,Learning and Assessment Methode
 A- Knowledge and UnderstandingA1. To familiarize the student with the concept of inorganic chemistry A2. The student will know how the elements are distributed in the periodic table A3. Understand the properties of the elements in each group of the periodic table A4. To familiarize the student with the most important properties, interactions and compounds of the elements of the periodic table A5. To familiarize the student with the importance and role of each element of the periodic table A6
B. Subject-specific skillsB1. Ability to work with information sources and
 inorganic chemistry books B2. The ability to distinguish between each group of the periodic table in terms of different properties B3. The ability to know the elements of each group of the periodic table in order B4. The ability to know the different compounds of different elements and their properties and how to distinguish between them
B5 The ability to solve problems that accompany chemical reactions
Teaching and Learning Methods
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities
Assessment methods
 Daily paper and oral exams (5%). The monthly paper exams (20%). Reports on topics related to the given theoretical material (5%). Practical (10%). The final theoretical exam (50%). Final practical exam (10%).
 C. Thinking Skills C1. Ability to work with information sources and inorganic chemistry books C2. The ability to distinguish between each group of the periodic table in terms of different properties C3. The ability to know the elements of each group of the periodic table in order C4. The ability to know the different compounds of different elements and their properties and how to distinguish between them
Teaching and Learning Methods
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities
Assessment methods

- 1- Daily paper and oral exams (5%).
- 2- The monthly paper exams (20%).
- 3- Reports on topics related to the given theoretical material (5%).
- 4- Practical (10%).
- 5- The final theoretical exam (50%).
- 6- Final practical exam (10%).
- D. General and Transferable Skills (other skills relevant to employability and personal development) D1. Ability to work with information sources and inorganic chemistry books

 - D2. The ability to distinguish between each group of the periodic table in terms of different properties
 - D3. The ability to know the elements of each group of the periodic table in order
 - D4. The ability to know the different compounds of different elements and their properties and how to distinguish between them
 - D5. The ability to solve problems that accompany chemical reactions

11. Cour	se Structu	ire			
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	knowledge and understanding	Chapter One: The periodic table How to distribute the elements in the periodic table and the division of elements into the representative elements and transition elements, the radioactive elements available in nature	Lectures and the use of computers and accessories	Electronic, oral and practical exams
2	4	knowledge and understanding	Chapter Two: Hydrogen and its general properties, isotopes of hydrogen, preparation of hydrogen, hydrogen bonding, hydrides	Lectures and the use of computers and accessories	Electronic, oral and practical exams
3	4	knowledge and understanding	Chapter Three: Alkaline elements, their presence, distribution and preparation, their solutions in ammonia liquid, compounds of alkaline elements	Lectures and the use of computers and accessories	Electronic, oral and practical exams
4	4	knowledge and understanding	Chapter Four: Alkaline- earth elements, their presence and distribution, their preparation, and their compounds	Lectures and the use of computers and accessories	Electronic, oral and practical exams

5	4	knowledge and understanding	Chapter Five: Elements of the third group, their presence, preparation, and oxygen-boron compounds	Lectures and the use of computers and accessories	Electronic, oral and practical exams
6	4	knowledge and understanding	Boron halides, complex compounds of aluminum	Lectures and the use of computers and accessories	Electronic, oral and practical exams
7	4	knowledge and understanding	Chapter Six: The elements of the fourth group, carbon, its existence and isotopes	Lectures and the use of computers and accessories	Electronic, oral and practical exams
8	4	knowledge and understanding	Pictures of carbon and carbon compounds, compounds of the rest of the group elements and their importance	Lectures and the use of computers and accessories	Electronic, oral and practical exams
9	4	knowledge and understanding	Chapter Seven: Elements of the fifth group Nitrogen, its presence, isotopes, methods of obtaining it and its compounds	Lectures and the use of computers and accessories	Electronic, oral and practical exams
10	4	knowledge and understanding	Phosphorous - Methods of obtaining it, phosphorous compounds, methods of preparing phosphorous, compounds of the rest of the group elements, their importance and uses	Lectures and the use of computers and accessories	Electronic, oral and practical exams
11	4	knowledge and understanding	Chapter Eight: The sixth group of oxygen, its presence, methods of obtaining it, its isotopes, its importance, and the compounds of oxygen	Lectures and the use of computers and accessories	Electronic, oral and practical exams
12	4	knowledge and understanding	Sulfur is its presence and ways to obtain it	Lectures and the use of computers and accessories	Electronic, oral and practical exams
13	4	knowledge and understanding	Sulfur compounds and their uses	Lectures and the use of computers and accessories	Electronic, oral and practical exams
14	4	knowledge	Chapter Nine: The	Lectures and	Electronic, oral and

		understanding	elements of the seventh group, the halogens, their existence, analogues, methods of preparation, and their general characteristics	the use of computers and accessories	practical exams
15	4	knowledge and understanding	Chapter 10: The noble gases group, the monatomic gases of the zero group	Lectures and the use of computers and accessories	Electronic, oral and practical exams
16	4	knowledge and understanding	The importance and uses of the elements of this group and its compounds, the affinity in the fluorides of these elements	Lectures and the use of computers and accessories	Electronic, oral and practical exams

12. Infrastructure	
 Required reading: CORE TEXTS COURSE MATERIALS OTHER 	 Fundamentals of Inorganic Chemistry. General Inorganic Chemistry. General Concepts in Inorganic Chemistry. Duran't General Inorganic Chemistry. The Chemistry of Periodic Table Elements.
Special requirements (include for example workshops, periodicals, IT software, websites)	All websites and Software that are interested in inorganic chemistry, elements, chemical compounds and periodic tables of the elements
Community-based facilities (include for example, guest Lectures , internship , field studies)	All inorganic chemistry books that deal with the basic concepts of inorganic chemistry.

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably beexpected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

2. University Department/Centre Chemistry 3. Programme Title Physico-kinetic chemistry 4. Title of Final Award Bachelor degree in Chemistry 5. Madea of Attendance of found 2021-2022	1. Teaching Institution	University of Anbar/College education for women
3. Programme Title Physico-kinetic chemistry 4. Title of Final Award Bachelor degree in Chemistry 5. Madea of Attendance offerred 2021-2022	2. University Department/Centre	Chemistry
4. Title of Final Award Bachelor degree in Chemistry 5. Madea of Attendance offerred 2021-2022	3. Programme Title	Physico-kinetic chemistry
5 Mades of Attendance offered 2021-2022	4. Title of Final Award	Bachelor degree in Chemistry
5. Modes of Attendance offered	5. Modes of Attendance offered	2021-2022
6. Accreditation 54 h	6. Accreditation	54 h
7. Other external influences 25/10/ 2021	7. Other external influences	25/10/ 2021
8. Date of production/revision of this Classroom	8. Date of production/revision ofthis	Classroom
specification	specification	

9. Aims of the Programme

A basic course for the female students of the Department of Chemistry aims to increase the students' scientific knowledge of physico-kinetic chemistry and what is related to the study of the speed and kinetics of chemical reactions and to determine the rank of chemical reactions 10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding A1. Study of kinetic chemistry related to the mechanics, speed, and order of chemical reactions, kinetic theories of reactions, mechanics of complex reactions, ionic strength, and electrochemistry: electrical conduction, electrical cell, electrodes, photochemistry, and photochemical reactions.

B. Subject-specific skills B1. Study of kinetic chemistry related to the mechanics, speed, and order of chemical reactions, kinetic theories of reactions, mechanics of complex reactions, ionic strength, and electrochemistry: electrical conduction, electrical cell, electrodes, photochemistry, and photochemical reactions.

Teaching and Learning Methods

Adopting the method of giving lectures and linking each topic with examples from the reality of the situation

2- Giving them some simple practical exercises that are discussed by the students and solving them during the lecture and with the participation of all the students in the division with the professor to give the material a kind of interaction.

Assessment methods

1- Through the participation of students in the lecture, based on their prior preparation of the subject.

2- Giving them (exercise) as a homework and asking them to solve it with separate papers to be collected from them in the next lecture.

3- Giving the students a case study and dividing the students into groups to write a report about that study.

4- Evaluation through monthly exams

C- Emotional and value goals.

C 1- Instilling values and principles in the student by emphasizing the independence of the statistician when expressing his impartial opinion

C2- Emphasis on the personal characteristics of the statistician, such as integrity, honesty, confidentiality and ethics.

C3- A statement of the importance of the rules of professional conduct for the statistician and his exposure to legal penalties in case of violation

C4- Emphasizing the importance of combating financial and administrative corruption

by statistical agencies.

Assessment methods

C- Emotional and value goals.

C 1- Instilling values and principles in the student by emphasizing the independence of the statistician when expressing his impartial opinion

C2- Emphasis on the personal characteristics of the statistician, such as integrity, honesty, confidentiality and ethics.

C3- A statement of the importance of the rules of professional conduct for the statistician and his exposure to legal penalties in case of violation

C4- Emphasizing the importance of combating financial and administrative corruption by statistical agencies.

D. General and Transferable Skills (other skills relevant to employability and personal development)

d- General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- Encouraging students to be creative and create a spirit of perseverance and self-denial through continuous encouragement of the need for joint and effective cooperation among them to fulfill their academic requirements.

D2 - They were provided with the university's website related to the availability of future opportunities for recruitment and employment

D 3- To provide them with knowledge of the importance of developing their capabilities through self-education by accessing various knowledge

D4 - Emphasis on the development of students' self-talents such as sports and arts of all kinds in their spare time.

Teaching and Learning Methods

d- General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- Encouraging students to be creative and create a spirit of perseverance and selfdenial through continuous encouragement of the need for joint and effective cooperation among them to fulfill their academic requirements.

D2 - They were provided with the university's website related to the availability of future opportunities for recruitment and employment

D 3- To provide them with knowledge of the importance of developing their capabilities through self-education by accessing various knowledge

D4 - Emphasis on the development of students' self-talents such as sports and arts of all kinds in their spare time.

Assessment Methods

d- General and rehabilitative skills transferred (other skills related to employability and personal development).

D1- Encouraging students to be creative and create a spirit of perseverance and self-denial through continuous encouragement of the need for joint and effective cooperation among them to fulfill their academic requirements.

D2 - They were provided with the university's website related to the availability of future opportunities for recruitment and employment

D 3- To provide them with knowledge of the importance of developing their capabilities

through self-education by accessing various knowledge

D4 - Emphasis on the development of students' self-talents such as sports and arts of all kinds in their spare time.

11. Program	me Structure			
Level/Year	Course or Module Code	Course or Module Title	Credit rating	12. Awards and Credits
third level	EWC 3305	Physico-kinetic chemistry	Credit hours practical 2 theory 3	Bachelor Degree Requires (x) credits
				Encouraging students to achieve the highest marks in the final stages of study at the college in order to be the -first in order to achieve their future dreams of completing -their studies in graduate studies

13. Personal Development Planning

Admission criterion (setting regulations related to joining the college or institute)

14. Admission criteria .

The standard to be followed is the student's (grade) score

But it is preferable to take into account (the desire of the student) to choose, even if it is

impossible to choose the college, but at least this is taken when choosing between departments

because it is a very important matter on which the future of the entire student depends.

15. Key sources of information about the programme

	Curriculum Skills Map																		
	please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																		
			Programme Learning Outcomes																
Year / Leve	Cours e Code	Course Title	Core (C) Title or Opt	K 2 1 2	Inowl and anders g	edge standi	n	S	ubjec sj sj	ct- pecific kills		r	Fhinki	ng Ski	l1s	Tra Oth e per	Genera nsferabl er skills mployat sonal de	al and eSkills relevan oility an evelopm	(or) nt to d ent
1			ion (O)	A1	A2	A3	A4	B1	B2	B 3	B4	C1	C2	C3	C4	D1	D2	D3	D4
thind lovel				\checkmark		\checkmark	\checkmark	\checkmark				\checkmark		\checkmark	\checkmark				
unira level	EWC 3305	physical chemistry	Basic																
		, i i i i i i i i i i i i i i i i i i i																	

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	University of Anbar/College education for women
2. University Department/Centre	Chemistry
3. Course title/code	Physico-kinetic chemistry
4. Programme(s) to which it contributes	Bachelor degree in Chemistry
5. Modes of Attendance offered	2021-2022
6. Semester/Year	54 h
7. Number of hours tuition (total)	25/10/ 2021
8. Date of production/revision of this specification	Classroom
9. Aims of the Course	

10. Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Knowledge and Understanding

A- Cognitive goals

1- Understand the nature of kinetic chemistry related to mechanics

2- Distinguish between all branches of physical chemistry

3- Distinguishing between physical chemistry and other disciplines of chemistry

B. Subject-specific skills

Study of kinetic chemistry related to the mechanics, speed, and order of chemical reactions,

kinetic theories of reactions, mechanics of complex reactions, ionic strength, and

electrochemistry: electrical conduction, electrical cell, electrodes, photochemistry, and

photochemical reactions.

Teaching and Learning Methods

1-Adopting the method of giving lectures and linking each topic with examples from the reality of the work situation.

2- Giving them some simple practical exercises that are being discussed by the students and solved during the lecture, with the participation of all the students in the division with the professor to give the material a kind of interaction.

3- Presenting some practical cases.

Assessment methods

C. Thinking Skills

C 1- Instilling values and principles in the student

C 2 - Emphasis on personal characteristics such as integrity, honesty, confidentiality and morals.

C3 - Statement of the importance of the rules of professional conduct and its exposure to legal

penalties in case of violation

C4- Emphasizing the importance of fighting financial and administrative corruption

Teaching and Learning Methods

Adopting the method of giving lectures and linking each topic with examples from the reality of the situation.

2- Giving them some simple practical exercises that are discussed by the students and solving them during the lecture and with the participation of all the students in the division with the professor to give the material a kind of interaction.

Assessment methods

1- Through the participation of students in the lecture, based on their prior preparation of the subject.

2- Giving them an (exercise) as it is a homework and asking for it to be solved with separate papers

to be collected from them in the next lecture.

3- Giving the students a case study and dividing the students into groups to write a report about that study.

4- Evaluation through monthly exams.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Encouraging students to be creative and create a spirit of perseverance and self-denial through continuous encouragement of the need for joint and effective cooperation among them to achieve their academic requirements

D2 - They were provided with the university's website related to the availability of future

opportunities for recruitment and employment

D 3- To provide them with knowledge of the importance of developing their capabilities through

self-education by accessing various knowledge

D4 - Emphasis on the development of students' self-talents, such as sports and arts of all kinds in

their spare time

11. Course Structure									
Week	Hours	ILOs	Unit/Module orTopic Title	Teaching Method	Assessment Method				
16	54		Physico-kinetic						
		General	chemistry	give lectures	Exam				
			·						
		understanding of			my class				
		_							
		physico-kinetic							
		chemistry							

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
	Recommended books and references (scientific journals,
	reports)
Minimum number of students	
	Arabic articles issued by academic and professional bodies
Maximum number of students	
	Attempting to link study topics to actual work through field
	visits

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	College of Education for Women						
2. University Department/Centre	Department of Chemistry						
3. Programme Title	Quantum Chemistry						
4. Title of Final Award	Bachelor of Chemistry						
5. Modes of Attendance offered	On-line						
6. Accreditation	Bachelor						
7. Other external influences							
8. Date of production/revision of 26-10-2021							
this specification							
9. Aims of the Programme							
To familiarize the student with the concept of quantum mechanics							
To identify the difference between classical and modern quantum mechanics							
That the student understands the methods of approximation and solution to the Schroedinger equation							
To familiarize the student with the basics of spectra							

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A1. To familiarize the student with the concept of Quantum chemistry A2. The student will know quantum and an ideal gas.
A3. Olderstand the properties of gas A4. To familiarize the student with the most important properties, interactions and compounds of gas.
B. Subject-specific skills B1. The student should be able to communicate and communicate
B2. Use of modern laboratory equipment and electronic calculators
B3. The student should be able to solve problems encountered in the laboratory B4. The ability to communicate and communicate with others in the work
B5 Teamwork ability
Teaching and Learning Methods
1- Lectures
2- Worksheets
3- Submitting studies from the Internet
4- Use of computers and their accessories
5- Laboratory activities
Assessment methods
1- Daily paper and oral exams (5%).
2- The monthly paper exams (20%).
3- Reports on topics related to the given theoretical material (5%).
4- Practical (10%).
5- The final theoretical exam (50%).
6- Final practical exam (10%).
reaching and Leanning Methods
1- Lectures
2- Worksheets
3- Submitting studies from the Internet
4- Use of computers and their accessories
5- Laboratory activities
Assessment methods
1- Daily paper and oral exams (5%).
2- The monthly paper exams (20%).
3- Reports on topics related to the given theoretical material (5%).
4- Practical (10%).
5- The final theoretical exam (50%).
o- Final practical exam (10%).

D. General and Transferable Skills (other skills relevant to employability and									
personal development)									
D1. To fa	D1. To familiarize the student with the concept of Quantum chemistry								
D2. The student will know gas and an ideal gas.									
D3. Understand the properties of gas									
D4. 10 Ia	D4. To familiarize the student with the most important properties, interactions and								
Teachin	Teaching and Learning Methods								
1-Lectu	1- Lectures								
2- Work	2- Worksheets								
3- Subn	nitting studies	from the Internet							
4-Use o	of computers a	and their accessories							
5- Labo	ratory activitie	es							
Assessn	Assessment Methods								
1- Daily	paper and or	al exams (5%).							
2- The r	nonthly paper	exams (20%).							
3- Repo	rts on topics r	elated to the given the	eoretical ma	terial (5%).					
4- Pract	ical (10%).								
5- The f	inal theoretica	al exam (50%).							
6- Final	practical example	n (10%).							
11. Program	me Structure								
	Course or	Course or Module	Credit	12 Awards and Credits					
Level/Year	Module	Title	rating	12. Wards and Credits					
2/2	Code								
LI L		L avol 2 3 practical Bachelor Degree							
		Requires (v) credits							
				requires (x) creatts					

	riculum Skills Map																		
	please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																		
					Programme Learning Outcomes														
Year / Course Course Core (C) Level Code Title (O)		Knowledge and understanding			Subject-specific skills			Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development							
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
2/1		Quantum Chemistry	С	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	College of Education for Women
2. University Department/Centre	Department of Chemistry
3. Course title/code	Quantum Chemistry
4. Programme(s) to which it contributes	Bachelor of Chemistry
5. Modes of Attendance offered	On-line
6. Semester/Year	First semester/ Second Year
7. Number of hours tuition (total)	7 hours (4 theoretical + 3 Practical)
8. Date of production/revision of this specification	04-10-2021
9. Aims of the Course	
To familiarize the student with the co	oncept of quantum mechanics
To identify the difference between cl mechanics	lassical and modern quantum

That the student understands the methods of approximation and solution to the Schroedinger equation

To familiarize the student with the basics of spectra
10. Learning Outcomes, Teaching ,Learning and Assessment Methode
A- Knowledge and Understanding A1. To familiarize the student with the concept of Quantum chemistry A2. The student will know how the gas are distributed in the periodic table A3. Understand the properties of the elements in each group of the periodic table A4. To familiarize the student with the most quantum properties.
 B. Subject-specific skillsB1. Ability to work with information sources and inorganic chemistry books B2. The ability to distinguish between gases in terms of different properties B3. The ability to know the elements of each group of the gas B4. The ability to know the different compounds of different elements and their properties and how to distinguish between them B5. The ability to solve problems that accompany chemical gas reactions
Teaching and Learning Methods
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities
Assessment methods
 1- Daily paper and oral exams (5%). 2- The monthly paper exams (20%). 3- Reports on topics related to the given theoretical material (5%). 4- Practical (10%). 5- The final theoretical exam (50%). 6- Final practical exam (10%).
 C. Thinking Skills C1. Ability to work with information sources and inorganic chemistry books C2. The ability to distinguish between each group of the periodic table in terms of different properties C3. The ability to know the elements of each group of the periodic table in order C4. The ability to know the different compounds of different elements and their properties and how to distinguish between them
Teaching and Learning Methods
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities
Assessment methods
 Daily paper and oral exams (5%). The monthly paper exams (20%). Reports on topics related to the given theoretical material (5%). Practical (10%). The final theoretical exam (50%). Final practical exam (10%)
 Daily paper and oral exams (5%). The monthly paper exams (20%). Reports on topics related to the given theoretical material (5%). Practical (10%). The final theoretical exam (50%). Final practical exam (10%).

11. Course Structure						
Week	Hours	ILOs	Unit/Module or Topic Title	Teachin g Method	Assessmen tMethod	
1	4	knowledge and understanding	the basic Concepts			
2	4	knowledge and understanding	Reasons for the emergence of quantum mechanics			
3	4	knowledge and understanding	coordinate systems			
4	4	knowledge and understanding	complex numbers			
5	4	knowledge and understanding	Newton's law of motion			
6	4	knowledge and understanding	Bor theorem			
7	4	knowledge and understanding	hydrogen atom spectra			
8	4	knowledge and understanding	black body radiation			
9	4	knowledge and understanding	quantum mechanics hypotheses			
10	4	knowledge and understanding	body in a box			
11	4	knowledge and understanding	Approximation methods for the Schroedecker equation			
12	4	knowledge and understanding	Infrared spectroscopy			
13	4	knowledge and understanding	microwave spectroscopy			
14	4	knowledge and understanding	electronic spectra			
15	4	knowledge and understanding	Nuclear magnetic resonance spectrum			
16	4	knowledge and understanding	the basic Concepts			

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Quantum and Spectra - Dr. Qais Abdel Karim Spectrum - Dr. Laila Mohamed Naguib Physical Chemistry - Dr. Nouri Khalifa Fayyad Introduction to Quantum Chemistry - Dr. Muthana Abdul-Jabbar Quantum Mechanics in Chemistry - Dr. Muslim Abd Muhammad
Special requirements (include for example workshops, periodicals, IT software, websites)	All websites and Software that are interested in inorganic chemistry, elements, chemical compounds and periodic tables of the elements
Community-based facilities (include for example, guest Lectures , internship , field studies)	All inorganic chemistry books that deal with the basic concepts of inorganic chemistry.

13. Admissions	
Pre-requisites	Physical Chemistry - Dr. Nouri Khalifa Fayyad Physical Chemistry - Dr. Muslim Abd
Minimum number of students	
Maximum number of students	

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	College of Education for Women				
2. University Department/Centre	Department of Chemistry				
3. Program Title	Mathematics				
4. Title of Final Award	Bachelor of Chemistry				
5. Modes of Attendance offered	On-line (Contraction)				
6. Accreditation	Bachelor				
7. Other external influences					
8. Date of production/revision of	04-10-2021				
this specification					
9. Aims of the Program					
a- To understand the principles of M	Iathematics				
b- To know how formulate the equa	tions in Mathematics				
c- Describe the phenomenon by Calculus law					
d- To identify Logic of math					
e- Set mathematical models of the real world					

10. Learning Outcomes, Teaching, Learning and Assessment Methods
A. Knowledge and Understanding A1. To familiarize the student with the concept of Mathematics A2. The student will know how the moving in real world A3. Understand how to make simple assumptions
A4. To familiarize the student with the applying the most important laws of Mathematics
 B. Subject-specific skills B1. Ability to solve problems in Mathematics B2. The ability to make connections between mathematics and other fields of science
 B3. The ability to derive the complex equations B4. Decide whether your results make sense, preferably by checking them against some real data
 B5. Make a list of the assumptions you need to make to simplify the situation to the point where you can apply mathematics to it.
Teaching and Learning Methods
1- Lectures
2- WORKSNEEDS 3 Submitting studies from the Internet
4- Use of computers and their accessories
5- my voutube Chanel
Assessment methods
1- Daily paper and oral exams (5%).
2- The monthly paper exams (20%).
3- Reports on topics related to the given theoretical material (5%).
4- Practical (10%).
5- The final theoretical exam (50%).
6- Final practical exam (10%).
C1. Ability to work with information sources and Mathematics books C2. The ability Make a list of the quantities involved C3.Set up your equations and solve them
Teaching and Learning Methods
1- Lectures
2- Worksheets
3- Submitting studies from the Internet
4- Use of computers and their accessories
5- Laboratory activities
Assessment methods

- 1- Daily paper and oral exams (5%).
- 2- The monthly paper exams (20%).
- 3- Reports on topics related to the given theoretical material (5%).
- 4- Practical (10%).
- 5- The final theoretical exam (50%).
- 6- Final practical exam (10%).

 D. General and Transferable Skills (other skills relevant to employability and personal development) D1. Ability to work with information sources and Mathematics books D2. Make a list of the assumptions you need to make to simplify the situation to the point where you can apply mathematics to it. D3. Make assumptions to solve problems in another knowledges 								
Teaching and Learning Methods								
 1- Lectures 2- Worksheets 3- Submitting studies from the Internet 4- Use of computers and their accessories 5- Laboratory activities Assessment Methods 								
1- Daily 2- The r 3- Repo 4- Pract 5- The f 6- Final	 1- Daily paper and oral exams (5%). 2- The monthly paper exams (20%). 3- Reports on topics related to the given theoretical material (5%). 4- Practical (10%). 5- The final theoretical exam (50%). 							
11. Program	me Structure							
Level/Year	Course or Module Code	Course or Module Title	Credit rating	12. Awards and Credits				
1/2	Mathematics Level 1 4 theoretical 3 practical Bachelor Degree							
				Requires (x) credits				

13. Personal Development Planning					
14. Admission criteria.					
15. Key sources of information about the programme					

	Curriculum Skills Map																		
	please tick in the relevant boxes where individual Program Learning Outcomes are being assessed																		
					Program Learning Outcomes														
Year / Course Level		Course Title Core (C) Title or Option (O)	K u	Knowledge and understanding			Subject-specific skills			Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development					
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
1/1		Mathemati cs	С	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark

Teaching and Learning Methods

- 1- Lectures
- 2- Worksheets
- 3- Submitting studies from the Internet
- 4- Use of computers and their accessories
 - 5- Laboratory activities

Assessment methods

- 1- Daily paper and oral exams (5%).
- 2- The monthly paper exams (20%).
- 3- Reports on topics related to the given theoretical material (5%).
- 4- Practical (10%).
- 5- The final theoretical exam (50%).
 - 6- Final practical exam (10%).
- C. Thinking Skills
- C1. Ability to work with information sources and Mathematics books C2. The ability to distinguish between each group of the periodic table in terms
- C2. The ability to distinguish between each group of the periodic table in terms of different properties

C3. The ability to know the elements of each group of the periodic table in order C4. The ability to know the different compounds of different elements and their properties and how to distinguish between them

Teaching and Learning Methods

- 1- Lectures
- 2- Worksheets
- 3- Submitting studies from the Internet
- 4- Use of computers and their accessories
 - 5- Laboratory activities

Assessment methods

- 1- Daily paper and oral exams (5%).
- 2- The monthly paper exams (20%).
- 3- Reports on topics related to the given theoretical material (5%).
- 4- Practical (10%).
- 5- The final theoretical exam (50%).
- 6- Final practical exam (10%).

11. Course Structure								
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method			
1	2	knowledge and understanding	Chapter One: Functions	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
2	2	knowledge and understanding	Chapter Two: Limits and Continuity	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
3	2	knowledge and understanding	Chapter Three: Derivatives	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
4	2	knowledge and understanding	Chapter Derivatives of transcendental Functions	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
5	2	knowledge and understanding	Chapter Five: Role and Mean value problems	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
6	2	knowledge and understanding	Maximum and Minimum value problems	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
7	2	knowledge and understanding	Chapter Six Applications of derivatives	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
8	2	knowledge and understanding	Chapter Seven: Integration	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
9	2	knowledge and understanding	Chapter Seven: fundamental Theorems in Integration	Lectures and the use of computers and accessories	Electronic, oral and practical exams			
10	2	knowledge and understanding	Chapter Seven– Properties of integration	Lectures and the use of computers and	Electronic, oral and practical exams			

				accessories	
11	2	knowledge and understanding	Chapter Seven: Integration of transcendental functions	Lectures and the use of computers and accessories	Electronic, oral and practical exams
12	2	knowledge and understanding	Chapter Seven: Applications of integration	Lectures and the use of computers and accessories	Electronic, oral and practical exams

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	 Fundamentals of Mathematics. General Mathematics. General Concepts in Mathematics. 4
Special requirements (include for example workshops, periodicals, IT software, websites)	All websites and Software that are interested in Mathematics,
Community-based facilities (include for example, guest Lectures , internship , field studies)	All Mathematics books that deal with the basic concepts of Mathematics.

13. Admissions	
Pre-requisites	
Minimum number of students	
Maximum number of students	