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

2024

Ministry of Higher Education and Scientific Research

Scientific supervision and evaluation device

Department of Quality Assurance and Academic Accreditation

Academic Description Program
2023-2024

Name university: Mosul
Name collage: Computer science And Mathematic
Name of department: Mathematics
File filling date: 1-4-2024

Signature:
Asst. Prof. Dr.
Abdulghafor Mohammed Amin

Department Head

Date: 24/4/2024

Signature:

The file has already been checked by

Director of Quality Assurance and Assesment Performance of the college of computer science and mathematic
Asst. Prof. Dr. Mohammed Chachan yonnis
Date: 24/4/2024

Signature:

Associate Dean for Scientific Affairs

Prof. Dr. Safwan Omar Hasoon

Date: 24/4/2024

Signature:
Approval of the Dean
Prof. Dr. Dhuha Basheer Abdullah
Date: 24/4/2024

Introduction:

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.

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.

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 3/2906 on 3/5/2023 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.

1. Program Vision

The department's goal is to maintain the distinguished scientific reputation derived from the quality of its graduates in terms of knowledge, skills, and abilities in the field of mathematics.

2. Program Mission

The Department of Mathematics should be a leading center in education and scientific research.

3. Program Objectives

1. Continuous aspiration towards excellence in education, scientific research, and professional service in various sciences.
2. Prepare students for the labor market and develop their communication abilities to positively interact with others through active participation in the training program.
3. Acquire skills to demonstrate ideas and encourage teamwork through graduation projects.
4. Prepare students for graduate studies in the field of Mathematics
5. Preparing specialized scientific leaders through graduate programs.
6. Interaction with other sciences

4. Program Accreditation

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

National Council of Teachers of Mathematics(NCTM)

5. Other external influences

Central examinations

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	9	2	20.4%	

College Requirements	**11**	**3**	**16.6%**	
Department Requirements	**34**	**3**	**63%**	
Summer Training	**40**	**2**	**100%**	
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First year	MS 101	Foundations of Mathematics (1)	3	
	MS 102	Advanced Calculus (1)	4	
	MS 103	Various Mathematical methods	2	
	MS 104	Programming	2	2
	UOM104	Human rights and democracy	2	
	MS 106	General physics	2	2
	MS 107	Foundations of Mathematics (2)	3	
	MS 108	Advanced Calculus (2)	4	
	MS 109	Linear algebra	2	
	UOM103	Computer	2	2
	MS 111	Principles of Statistics	2	
	UOM102	English language (1)	2	
	UOM101	Arabic language	2	
	MS 201	Advanced Calculus (1)	4	
	MS 202	Ordinary differential equations	2	
	MS 203	Algebra of groups	3	
	MS 204	Probability	2	
	MS 205	Mathematical physics	2	
	MS 206	English language (2)	2	
	MS 207	Advanced Calculus (2)	4	
	MS 208	Partial differential equations	3	2
	MS 209	Numerical analysis (1)	2	
	MS 210	Algebra of rings	3	

	UOM101	Arabic language	2	
Third Year	MS 301	Mathematical analysis (1)	2	
	MS 302	Operations research	2	
	MS 303	Mathematical modeling	2	2
	MS 304	English language (3)	3	
	MS 305	Mathematical Statistics (1)	3	
	MS 306	Numerical analysis (2)	2	2
	MS 307	Mathematical Analysis (2)	2	
	MS 308	Number theory	2	
	MS 309	Computational mathematics	2	2
	MS 310	Theory of ordinary differential equations	2	
	MS 311	Mathematical statistics (2)	3	
	MS 312	Fuzzy mathematics	2	
	MS 301	Mathematical analysis (1)	3	
	MS 302	Operations research	2	
Fourth year	MS 401	Complex analysis (1)	3	
	MS 402	Topology (1)	2	
	MS 403	Functional analysis (1)	3	
	MS 404	Graph theory	2	
	MS 405	Dynamic systems	2	
	MS 406	Scientific research method	2	
	MS 407	Complex analysis (2)	4	
	MS 408	Topology (2)	2	
	MS 409	Functional analysis (2)	3	
	MS 410	Research project	2	
	MS 411	English language (4)	2	
	MS 412	Optimization	2	

8. Expected learning outcomes of the program

Knowledge	
1. 1. Continuous aspiration towards cognitive excellence in education and scientific research 2. How the student is able to collect information and acquire scientific and practical skills through graduation projects 3. Qualifying students for postgraduate studies in the field of mathematics. 4. Preparing specialized scientific staff in the graduate program and interaction with other sciences. 5. Qualifying students as teachers in the Directorate of Education 6. Encouraging scientific research and improving the student's discussion skills	1. Theory 2. Process 3. Student training/summer training 4. Graduation research
Skills	
1. The skill of deduction and analysis. 2. Mathematical and statistical solution skill. 3. The skill of comparing, building hypotheses, and making decisions. 4. The skill of building, analyzing and interpreting mathematical models. 5. The skill of discussing and making the right decisions. 6. Skill in using modern means, including computers. 7. Skill in using modern applied statistical programs and programming languages. 8. The skill of writing programs to solve and estimate problems. 9. The skill of searching for correct scientific information. 10. The skill of conducting scientific research, analyzing it, solving its problems, and drawing appropriate conclusions in solving them for the purpose of decision-making.	1. The ability to study group. 2. The ability to conduct scientific discussion among students. 3. The ability to develop skills among students. 4. Ability in discussion, analysis, and collective decision-making. Develop the ability to cooperate.
Ethics	
1. Demonstrate awareness of ethical issues related to data privacy, confidentiality, and intellectual property. 2. Adhere to ethical guidelines and professional standards 3. Embrace lifelong learning and stay updated with emerging trends and technologies in the field.	

9. Teaching and Learning Strategies

1. Continuous aspiration towards cognitive excellence in education, scientific research and professional service in various sciences.
2. Preparing students for the labor market and developing their abilities to interact and communicate with others through effective participation in the field training program.
3. Acquiring skills to present ideas and work within one team through graduation projects.
4. Qualifying students for postgraduate studies in the field of mathematics.
5. Preparing specialized scientific leaders through the graduate program.
6. Interaction with other sciences.

10. Evaluation methods

1. Electronic exams (on line).
2. Central and monthly examinations.
3. Daily exams.
4. Daily duties.
5. Scientific reports
6. Computerized laboratory examinations.
7. Graduation projects.

Faculty Members in the Mathematics Department

Academic Rank	Specialization		NO.
Professor	Mathematics	Algebra	2
Professor	Mathematics	Optimization	3
Professor	Mathematics	Time series	1
Professor	Mathematics	Intelligence techniques	1
Professor	Mathematics	Statement theory	1
Professor	Mathematics	Numerical analysis	1
Assistant Professor	Mathematics	Differential equations	1
Assistant Professor	Mathematics	Numerical analysis	2
Assistant Professor	Mathematics	Algebra	1
Assistant Professor	Mathematics	Fluid mechanics	1
Assistant Professor	Mathematics	Applied mathematics	4
Assistant Professor	Mathematics	Optimization	1
Lecturer	Mathematics	Dynamic systems	1
Lecturer	Mathematics	Applied mathematics	5
Lecturer	Mathematics	Computational mathematics	2
Lecturer	Mathematics	Differential equations	2
Lecturer	Mathematics	Algebraic geometry	1
Lecturer	Computer	Digital signal processing	1
Lecturer	Mathematics	Numerical analysis	3

Lecturer	Mathematics	Algebra	2
Lecturer	Mathematics	Optimization	2
Lecturer	Mathematics	Topology	2
Lecturer	Mathematics	Intelligent numerical algorithms	1
Lecturer	Mathematics	Statement theory	1
Lecturer	law	constitutional law	1
Assistant teacher	Mathematics	Statement theory	2
Assistant teacher	Computer	Communications and networks	1
Assistant teacher	Mathematics	Differential equations	1
Assistant teacher	Mathematics	Optimization	2
Assistant teacher	Statistics	Counting	1
Assistant teacher	Mathematics	Algebra of rings	1

Professional Development

Mentoring new faculty members

1. E-learning.
2. Using the Internet.
3. Using modern means of communication.
4. Use modern means of communication.
5. Extracurricular activities.
6. Advanced training courses in learning modern programs.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty members such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

11. Acceptance Criterion

1. Central admission to the Ministry of Higher Education and Scientific Research.

2. The student's average is on the central admission lists, with the exception of the children of teaching staff, the martyrs' building, and the privileges stipulated in the Ministry's instructions, as they are accepted according to desire for distribution among the scientific departments.

12.	**The most important sources of information about the program**
State briefly the sources of information about the program.	

13.	Program Development Plan
Transferring academic subjects for all levels in the Department of Mathematics to the Bologna track	

Program Skills Outline

				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First year	MS 101	Foundations of Mathematics (1)	C	√	√	√	√	√	√	√	√	√	√	√	√
	MS 102	Advanced Calculus (1)	B	√	√	√	√	√	√	√	√	√	√	√	√
	MS 103	Miscellaneous Mathematical Methods	B	√	√	√	√	√	√	√	√	√	√	√	√
	MS 104	Programming	B	√	√	√	√	√	√	√	√	√	√	√	√
	UOM104	Human rights and democracy	B	√	√	√	√	√	√	√	√	√	√	√	√
	MS 106	General physics	B	√	√	√	√	√	√	√	√	√	√	√	√
	MS 107	Foundations of Mathematics (2)	C	√	√	√	√	√	√	√	√	√	√	√	√
	MS 108	Advanced Calculus (2)	B	√	√	√	√	√	√	√	√	√	√	√	√
	MS 109	Linear algebra	C	√	√	√	√	√	√	√	√	√	√	√	√
	UOM103	the computer	B	√	√	√	√	√	√	√	√	√	√	√	√
	MS 111	Principles of Statistics	B	√	√	√	√	√	√	√	√	√	√	√	√
	UOM102	English language (1)	B	√	√	√	√	√	√	√	√	√	√	√	√

Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Second Year	UOM101	Arabic	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 202	Advanced Calculus (1)	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 203	Ordinary differential equations	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 204	Algebra of groups	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 205	Probability	my choice	√	√	√	√	√	√	√	√	√	√	√	√
	MS 206	Mathematical physics	my choice	√	√	√	√	√	√	√	√	√	√	√	√
	MS 207	English language (2)	my choice	√	√	√	√	√	√	√	√	√	√	√	√
	MS 208	Advanced Calculus (2)	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 209	Partial differential equations	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 210	Numerical analysis (1)	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 211	Algebra of rings	my choice	√	√	√	√	√	√	√	√	√	√	√	√
	MS 212		my choice	√	√	√	√	√	√	√	√	√	√	√	√
Third Year	MS 301	Mathematical Analysis (1)	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	MS 302	Operations research	Basic	√	√	√	√	√	√	√	√	√	√	√	√

	MS 303	Mathematical modeling	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 304	English language (3)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 305	Mathematical Statistics (1)	**my choice**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 306	Numerical analysis (2)	**my choice**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 307	Mathematical Analysis (2)	**my choice**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 308	Number theory	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 309	Computational mathematics	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 310	Theory of ordinary differential equations	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 311	Mathematical statistics (2)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 312	Fuzzy mathematics	**my choice**	√	√	√	√	√	√	√	√	√	√	√	√
Fourth year	MS 401	Nodal analysis (1)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 402	Topology (1)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 403	Functional analysis (1)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 404	Statement theory	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 405	Dynamic systems	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√
	MS 406	Scientific research method	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√

MS 407	Nodal analysis (2)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√
MS 408	Topology (2)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√
MS 409	Functional analysis (2)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√
MS 410	research project	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√
MS 411	English language (4)	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√
MS 412	Optimization	**Basic**	√	√	√	√	√	√	√	√	√	√	√	√	√	√