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

Department of Mathematics

2023

Introduction:

The academic program description summarizes the program's key features and goals, outlining the skills students will develop. It is essential for accreditation and is prepared collaboratively by faculty under departmental oversight.

Programs are structured with courses designed to enhance students' competencies and prepare them for the job market. They are reviewed annually through internal and external evaluations, such as the External Examiner Program.

This edition incorporates updates to align with recent developments in Iraq's educational system, emphasizing the importance of accurate program and course descriptions to support educational quality and effectiveness.

1. Program Vision

The department strives to maintain its distinguished academic reputation in the field of mathematics, encompassing both its computational and pure branches. It aims to equip graduates with the knowledge and skills needed to solve problems analytically and numerically.

2. Program Mission

The Department of Mathematics aspires to be a premier institution for education and scientific research.

3. Program Objectives

1. Strive for excellence in education, scientific research, and professional contributions across various scientific fields.
2. Equip students for the labor market by enhancing their communication skills and fostering positive interaction through active participation in training programs.
3. Develop students' abilities to present ideas effectively and promote teamwork through graduation projects.
4. Prepare students for advanced studies in Mathematics.
5. Train specialized scientific leaders through graduate programs.
6. Foster interdisciplinary collaboration 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 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
	MS105	Human rights	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	
Second Year	MS 112	English language (1)	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	
	MS 209	Numerical analysis (1)	2	2
	MS 210	Algebra of rings	3	
	MS 211	Arabic language	2	
	MS 212	Mathematical Transformations	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)	2	
	MS 305	Mathematical Statistics (1)	2	
	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)	2	
	MS 312	Fuzzy mathematics	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	

7. Expected learning outcomes of the program

Knowledge	
1. Strive for cognitive excellence in education and scientific research. 2. Enable students to gather information and develop scientific and practical skills through graduation projects. 3. Prepare students for postgraduate studies in the field of mathematics. 4. Develop specialized scientific professionals in graduate programs and promote interdisciplinary collaboration. 5. Equip students to become qualified teachers in the Directorate of Education. 6. Encourage scientific research and enhance students' discussion and presentation skills.	1. Theory 2. Process 3. Student training/summer training 4. Graduation research
Skills	
1. Deductive reasoning and analytical skills. 2. Mathematical and statistical problem-solving skills. 3. Skills in comparison, hypothesis formulation, and decision-making. 4. Skills in building, analyzing, and interpreting mathematical models. 5. Skills in discussing issues and making sound decisions. 6. Proficiency in using modern tools, including computers.	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 in all aspects of academic and professional work. 3. Embrace lifelong learning and remain updated with emerging trends and technologies in the field.	

8. Teaching and Learning Strategies

1. Continuously strive for cognitive excellence in education, scientific research, and professional service across various scientific disciplines.
2. Prepare students for the labor market by enhancing their interaction and communication skills through active participation in field training programs.
3. Equip students with skills to present ideas and collaborate effectively within teams through graduation projects.

9. 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.

10. 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. Program Development Plan

Extracurricular activities and community service through participation in events organized by the college.