اعتماد
NCAAA

T14

Program Specifications
(Postgraduate Degree)

Program Name: Master of Science in Mathematics	
Qualification Level: 7	
Department: Mathematics and Statistics	
College: Science	
Institution: Imam Mohammad Ibn Saud Islamic University	

A. Program Identification and General Information

1. Program Main Location:
Main Campus for the Male Section.
2. Branches Offering the Program:
Branch **1. King Abdullah City for the Female Section.**
3. Reasons for Establishing the Program: (Economic, social, cultural, and technological reasons, and national needs and development, etc.)

- i) **To contribute in filling the shortage of mathematical sciences graduate study programs in the higher education system at Saudi Arabia.**
- ii) **To utilize local graduate studies in mathematical sciences for student's – especially females – that for social or other reasons - can't seek their graduate studies outside the kingdom.**
- iii) **Graduate student of this program is expected to be well prepared for professional careers in disciplines which make use of the mathematical sciences.**
- iv) **The graduate student of this program will be able to compete successfully for internship and employment positions in government, industry, and non-profit organizations.**
- v) **Graduates of this program will have the readiness for outreach toward application areas such as physical sciences, financial services, and social sciences and have the knowledge, experience, and motivation to bring the tools of mathematics to bear on real-world problems.**
- vi) **The program will produce qualified lecturers in the academic fields of mathematical sciences to cover the needs of community colleges and professional institutes in Saudi Arabia.**
- vii) **Graduates of this program will have the intellectual curiosity and flexibility to keep up with developing technology applied in science and with the new methods in contemporary mathematical fields.**
- viii) **Graduates of this program are expected to become sufficiently proficient in the core academic material to permit further study at the PhD level in pure and applied mathematics and related scientific fields in engineering disciplines and computer sciences.**

7. Total Credit Hours for Completing the Program: (51 Credit Hours)
8. Learning Hours: (153 Self-study Hours)   The time that a learner takes to complete learning activities that lead to achievement of program learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times)
9. Professional Occupations/Jobs:

- **331404 Statistics Assistant.**
- **121117 Statistics Manager.**
- **211102 Astronomy Specialist.**
- **212003 Statistician.**

11. Intermediate Exit Points/Awarded Degree (if any)**: Yes**

Intermediate exit points/awarded degree	Credit hours
Higher Diploma in Mathematics	**٣٠**

Exit Point Professional Occupations/Jobs
• **121117 Statistician Manager.**
• **134906 Manager of Weather Forecasting and Environment Control Station.**
• **211102 Astronomy Specialist.**
• **211201 Weather Forecasting Specialist.**
• **212003 Statistician.**
• **232001 Professional Trainer.**
• **331404 Statistician Assistant.**

B. Mission, Goals, and Learning Outcomes

1. Program Mission:
To prepare well qualified staff who will contribute effectively in economic and social developments of Saudi Arabia and who will work innovatively on enhancing the higher education system of the country in the field of mathematics and its applications to other disciplines.
2. Program Goals:
PG1. Developing the student's abilities and potentials to enhance their mathematical skills.
PG2. Providing the students with appropriate skills to become independent learners and be experienced in doing scientific research.
PG3. Providing a strong package of professional skills to assure good integration in careers that uses mathematics and to contribute to economic and social developments of Saudi Arabia.
PG4. Enhancing the student's scientific background, to continue graduate studies in the Ph.D. at national or international universities.
4. Graduate Attributes:
1. Having deep mathematical skills,
2. Independent learner in Mathematics,
3. Experienced in doing mathematical research,
4. Having a good integration in careers that uses mathematics,
5. Having the ability to continue graduate studies in the Ph.D. at national or international universities.

C. Curriculum

1. Study Plan Structure

Program Structure		No. of Courses	Credit Hours	Percentage
Course	Required	**7**	**35**	**69 %**
	Elective	**3**	**12**	**23 %**
Graduation Project (if any)		**1**	**4**	**8 %**
Thesis (if any)		**0**	**0**	**0 %**
Field Experience (if any)		**0**	**0**	**0 %**
Others (.....)		**0**	**0**	**0 %**
Total		**11**	**51**	**100 %**

* Add a table for each track (if any)

2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	MAT 6121	Advanced Linear Algebra	Required	None	5 (4, 0, 2)
	MAT 6171	Topology	Required	None	5 (4, 0, 2)
Level 2	MAT 6111	Introduc. to Measure and Integration	Required	MAT 6171	5 (4, 0, 2)
	MAT 6141	Numerical Analysis	Required	None	5 (4, 0, 2)
Level 3	MAT 6113	Introduc. to Functional Analysis	Required	MAT 6171	5 (4, 0, 2)
	MAT 6123	Algebra (1)	Required	None	5 (4, 0, 2)
Level 4	MAT 6231	Partial Differential Equations	Required	MAT 6111 MAT 6113	5 (4, 0, 2)
	MAT 6xxx	Elective Course 1 (List A or List B)	Elective	None	4 (4, 0, 0)
Level 5	MAT 6xxx	Elective Course 2 (List A or List B)	Elective	None	4 (4, 0, 0)
	MAT 6xxx	Elective Course 3 (List A or List B)	Elective	None	4 (4, 0, 0)
Level 6	MAT 6299	Research Project	Required	None	4 (3, 0, 2)

* Include additional levels if needed

** Add a table for each track (if any)

Elective Courses:

List A
1. MAT 6215: Applied Functional Analysis;
2. MAT 6242: Numerical Methods for ODEs;
3. MAT 6245: Numerical Optimization;
4. MAT 6247: Statistical Theory and Inference;
5. MAT 6249: Finite Markov Chains and Applications;
6. MAT 6253: Combinatorial Optimization;
7. MAT 6261: Coding Theory & Cryptography;
8. MAT 6263: Mathematical and Computational Modeling;
9. MAT 6265: Mathematical Modeling and Infections;
10. MAT 6281: Selected Topics in Applied Mathematics (1);
11. MAT 6283: Selected Topics in Applied Mathematics (2).

List B
1. MAT 6217: Introduction to Operator Theory;
2. MAT 6219: Introduction to Ergodic Theory;
3. MAT 6224: Algebra (2);
4. MAT 6226: Number Theory;
5. MAT 6228: Group Representation;
6. MAT 6233: Ordinary Differential Equations;
7. MAT 6251: Graph Theory & Combinatorics;
8. MAT 6255: Algebraic Graph Theory;
9. MAT 6275: Differential Geometry;
10. MAT 6285: Selected Topics in Pure Mathematics (1);
11. MAT 6287: Selected Topics in Pure Mathematics (2).