اعتماد
NCAAA

T14

Program Specifications
(Postgraduate Degree)

Program Name: Doctor of Philosophy in Mathematics	
Qualification Level: 8	
Department: Mathematics and Statistics	
College: Science	
Institution: Imam Mohammad Ibn Saud Islamic University	

VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

Content

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 participate in the scientific development of the Kingdom in line with 2030 Vision.**
- **ii)** **To contribute in filling the shortage of mathematical sciences graduate study programs in the higher education system at Saudi Arabia.**
- **iii)** **To provide the opportunity for our MSc program in Mathematics graduates for pursuing their higher studies at the university.**
- **iv)** **To utilize local graduate studies in mathematical sciences for student's – especially females – whose for social or other reasons can't seek their graduate studies outside the kingdom.**
- **v)** **To cover the needs of colleges, professional institutes, and universities in Saudi Arabia of qualified teaching staff in mathematical sciences.**
- **vi)** **Graduate student of this program is expected to be well prepared for professional careers in disciplines which make use of the mathematical sciences.**
- **vii)** **The graduate student of this program will be able to compete successfully for internship and employment positions in government, industry, and non-profit organizations.**
- **viii)** **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.**
- **ix)** **The program will produce qualified assistant professors in the academic fields of mathematical sciences to cover the needs of universities in Saudi Arabia.**
- **x)** **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.**

4. System of Study
- ■ Coursework & Thesis ☐ Coursework

5. Mode of Study
- ■ On Campus ☐ Distance Education ☐ Others

6. Educational and Research Partnerships (if any) **None.**
- Partnership Arrangement:
- Type of Partnership:
- Duration of Partnership:

7. Total Credit Hours for Completing the Program: (66 Credit Hours)

8. Learning Hours: (99 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.**   **231017 Mathematics and Statistics Professor.**

10. Major Tracks/Pathways (if any)**: N.A.**

Major Track/Pathway	Credit Hours (For each track)	Professional Occupations/Jobs (For each track)

11. Intermediate Exit Points/Awarded Degree (if any)**: None.**

B. Mission, Goals, and Learning Outcomes

1. **Program Mission:**

Preparing a distinguished academic PhD program in mathematics to take part in developing the higher education system in Saudi Arabia, and to contribute to the economic and social development in Saudi Arabia.

2. **Program Goals:**

PG1. Providing students with a solid grounding in mathematics and specialty in one of the mathematical fields.

PG2. Providing students with the background necessary to conduct scientific research in the specialty field in order to contribute to the economic and social development in Saudi Arabia.

PG3. Fulfilling the needs of the universities and research centers in Saudi Arabia for faculty members and researchers in the area of mathematics.

PG4. Meeting the master graduates' growing demands to pursue their studies inside the country.

3. **Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.**

i) The program contributes to implementing the mission of the university by the formation of well qualified students in mathematics;

ii) Supporting the mission of the university through discovery, creation, and developing scientific knowledge by teaching, doing seminars and workshops, and by publishing scientific papers.

iii) Giving opportunities for Saudi students to earn Ph.D. degrees in their selected fields of study.

iv) Assisting the university in providing good quality education and high-quality research to the society and the nation.

v) Enhancing the teaching mission of the university by offering high level academic courses in the fields of mathematics.

vi) Enhancing the quality of the university faculty members by attracting distinguished professors in mathematical sciences to teach and supervise the Ph.D. students.

4. **Graduate Attributes:**

1. Having deep mathematical skills,

2. Independent learner in Mathematics,

3. Experienced in doing mathematical research,

4. Having a god integration in careers that uses mathematics,

5. Having the ability to get jobs at national or international universities.

5. **Program Learning Outcomes***

Knowledge:	
K1	State the fundamentals of advanced topics in Mathematics as a rigorous living discipline in its own right.

K2	Outline the areas of specializations through studying specific topics relevant to research in mathematics.
Skills	
S1	Apply advanced theoretical knowledge to analyze problems and develop innovative solutions.
S2	Synthesize research and theoretical writings for developing new and creative insights in the field of specialization.
S3	Communicate in a clear and concise manner orally, on paper and using IT.
S4	Make efficient use of computer for acquiring, analyzing and presenting information.
Values	
V1	Demonstrate integrity, professional and academic ethics, participation in finding constructive solutions to some societal issues, and a commitment to responsible citizenship.
V2	Self-evaluate of the level of learning and performance, insist on achievement and excellence, and make logical decisions supported by evidence and arguments independently.
V3	Lead teamwork with functional flexibility and effectiveness, and take responsibility for professional development, participating in developing the group's performance, and enhancing the quality of life.

* Add a table for each track or Exit Points/Awarded Degree (if any)

C. Curriculum

1. Study Plan Structure

Program Structure		No. of Courses	Credit Hours	Percentage
Course	Required	7	33	50 %
	Elective	3	15	23 %
Graduation Project (if any)		0	0	0 %
Thesis (if any)		1	18	27 %
Field Experience (if any)		0	0	0 %
Others (.....)		0	0	0 %
Total		11	66	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 7111	Measure and Integration	Required	None	5 (4 0, 2)
	MAT 7121	Groups and Fields	Required	None	5 (4 0, 2)
Level 2	MAT 7113	Complex Analysis	Required	None	5 (4 0, 2)
	MAT 7122 or MAT 7131	Rings and Modules (PM track) or Advanced Partial Differential Equations (AM track)	Required	None	5 (4 0, 2)
Level 3	MAT 7115 or MAT 7141	Functional Analysis (PM track) or Advanced Numerical Analysis (AM track)	Required	None	5 (4 0, 2)
	MAT 7xxx	Elective Course 1 (List A or List B)	Elective	None	5 (4 0, 2)
Level 4	MAT 7xxx	Elective Course 2 (List A or List B)	Elective	None	5 (4 0, 2)
	MAT 7xxx	Elective Course 3 (List A or List B)	Elective	None	5 (4 0, 2)
Level 5	MAT 7291	Reading and Research (1)	Required	None	4 (4, 0, 0)
Level 6	MAT 7292	Reading and Research (1)	Required	None	4 (4, 0, 0)
Comprehensive Examination					
Level 7	MAT 7399	PhD Dissertation	Required	None	18
Level 8	MAT 7399	PhD Dissertation	Required	None	0
Level 9	MAT 7399	PhD Dissertation	Required	None	0
Level 10	MAT 7399	PhD Dissertation	Required	None	0
Level 11	MAT 7399	PhD Dissertation	Required	None	0
Level 12	MAT 7399	PhD Dissertation	Required	None	0

* Include additional levels if needed

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

Elective Courses:

PM track List (List A):
1. MAT 7219: Harmonic Analysis;
2. MAT 7223: Theory of Numbers;
3. MAT 7224: Algebraic Number Theory;
4. MAT 7225: Galois Theory and Fields;
5. MAT 7226: Analytic Number Theory;
6. MAT 7227: Commutative Algebra;
7. MAT 7228: Group Representation;
8. MAT 7229: Homological Algebra;
9. MAT 7233: Ordinary Differential Equations and Dynamical Systems;

10. MAT 7251: Combinatorics;
11. MAT 7271: Algebraic Topology;
12. MAT 7273: Algebraic Geometry;
13. MAT 7275: Differential Geometry;
14. MAT 7277: Introduction to Manifolds;
15. MAT 7281: Selected Topics in Pure Mathematics (1);
16. MAT 7285: Selected Topics in Pure Mathematics (2).

AM track List (List B):
1. MAT 7201: Probability Theory;
2. MAT 7203: Stochastic Differential Equations;
3. MAT 7205: Random Dynamical Systems;
4. MAT 7215: Functional Analysis;
5. MAT 7233: Ordinary Differential Equations and Dynamical Systems;
6. MAT 7236: Integral Equations;
7. MAT 7237: Nonlinear Analysis;
8. MAT 7239: Calculus of Variations;
9. MAT 7243: Spectral Methods;
10. MAT 7245: Numerical Optimization;
11. MAT 7247: Approximation Theory;
12. MAT 7253: Combinatorial Optimization;
13. MAT 7255: Graph Theory and Applications;
14. MAT 7266: Mathematical Fluid Mechanics;
15. MAT 7283: Selected Topics in Applied Mathematics (1);
16. MAT 7287: Selected Topics in Applied Mathematics (2).

3. Course Specifications
Insert hyperlink for all course specifications using NCAAA template

Attached

4. Program learning Outcomes Mapping Matrix
Align the program learning outcomes with program courses, according to the following desired levels of performance
(I = Introduced   P = Practiced   M = Mastered)

Course code & No.	Program Learning Outcomes								
	Knowledge		Skills				Values		
	K.1	K.2	S.1	S.2	S.3	S.4	V.1	V.2	V.3
MAT 7111	I	I	I	I	I	I	I	I	P
MAT 7121	I	I	I	I	I	I	I	I	P
MAT 7113	I	I	I	I	I	I	I	I	P
MAT 7122	I	I	I	I	I	I	I	I	P
MAT 7115	I	I	I	I	I	I	I	I	P
MAT 7131	I	I	I	I	I	I	I	I	P
MAT 7141	P	I	I	I	M	M	M	P	P
MAT 7219	M	P	P	P	M	M	M	P	P
MAT 7223	M	P	P	P	M	M	M	P	P
MAT 7224	P	I	I	I	P	P	P	I	I
MAT 7225	P	I	I	I	P	P	P	I	I
MAT 7226	P	I	I	I	P	P	P	I	I
MAT 7227	M	P	P	P	M	M	M	P	P
MAT 7228	M	P	P	P	M	M	M	P	P
MAT 7229	P	I	I	P	M	M	M	P	P
MAT 7233	P	I	I	P	M	M	M	P	P
MAT 7251	M	P	P	P	M	M	M	P	P

| Course code & No. | Program Learning Outcomes | | | | | | | | |
| | Knowledge | | Skills | | | | Values | | |
	K.1	K.2	S.1	S.2	S.3	S.4	V.1	V.2	V.3
MAT 7271	M	P	P	P	M	M	M	P	P
MAT 7273	M	P	P	P	M	M	M	P	P
MAT 7275	M	P	P	P	M	M	M	P	P
MAT 7277	M	P	P	P	M	M	M	P	P
MAT 7281	M	P	P	P	M	M	M	P	P
MAT 7282	M	P	P	P	M	M	M	P	P
MAT 7201	M	P	P	P	M	M	M	P	P
MAT 7203	M	P	P	P	M	M	M	P	P
MAT 7205	P	I	I	I	P	P	P	I	I
MAT 7236	P	I	I	I	P	P	P	I	I
MAT 7237	P	I	I	I	P	P	P	I	I
MAT 7239	M	P	P	P	M	M	M	P	P
MAT 7243	M	P	P	P	M	M	M	P	P
MAT 7245	P	I	I	P	M	M	M	P	P
MAT 7247	P	I	I	P	M	M	M	P	P
MAT 7253	M	P	P	P	M	M	M	P	P
MAT 7255	M	P	P	P	M	M	M	P	P
MAT 7266	M	P	P	P	M	M	M	P	P
MAT 7283	M	P	P	P	M	M	M	P	P
MAT 7287	M	P	P	P	M	M	M	P	P
MAT 7291	M	P	P	P	M	M	M	P	P
MAT 7292	M	P	P	P	M	M	M	P	P
MAT 7399	M	M	M	M	M	M	M	M	M

* Add a table for each track (if any)

---

5. Teaching and Learning Strategies to Achieve Program Learning Outcomes

Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

According to College Strategic Plan, graduates will be active learners and bilingual students, with a scientific, technological, mathematical, background and ethical values. However, in order to achieve the Strategic Plan Goals, the College developed thirteen initiatives:

The department ensures teaching quality standards through the following actions:

- At the beginning of each trimester the syllabi, are given to the students, containing courses detailed information, method of evaluation and grades, etc.
- The courses distribution is done according to the specialities of faculty staff and their wishes.
- At the beginning of each trimester two coordinators are nominated for each course, one in Female Branch and the other in Male Brach one, who are asked to communicate and coordinate between them.
- The duties of the course coordinator consist on:
  o Distribution of time according to the course contents.
  o The preparation of the exercise lists, the midterms and the final exam.
- The follow-up of good progress of the course in all the sections through the periodic meetings with course teachers and report.

- The evaluation of the teaching quality and benchmarking between parallel sections (groups) and the sections of the previous session of the same course.
- Collect the course report.
- Update the course folder.
- Annual report is prepared annually.
- Student surveys of all courses and program.
- Teaching staff evaluations of the program.
- Annual Faculty and Staff performance evaluation.

Supports for student independent work:

There are many supports for the independent scientific work of the students and here are some of them:

1) *Open Computer Labs*: The students can use these facilities to review independently a part of a course, to prepare a home work or an exam, or to access the (local) digital library;

2) *Digital library via open computer labs*: The students, in particular those preparing a Master degree, can access the (local) digital library to get free papers and theses. They read independently these resources and write reports on them;

3) *Materials provided via Blackboard platform*: The teachers use Blackboard to give students all kinds of materials related to the courses: syllabi, slides, list of exercises, solutions to exams and home works, etc... These materials can be used independently by students for a best management of the course;

4) At least six office hours provided by each teacher: Each teacher has to choose in his timetable at least six office hours in order to discuss all course issues with students;

5) Research or graduation project course: During this course, students have to work independently in order to write a report and to give an oral presentation at the end of the course;

6) Mini-projects and/or home works in some courses: The main goal of these assessment methods is to strength the independence work of students.

6. Assessment Methods for Program Learning Outcomes.

Describe assessment methods (Direct and Indirect) that can be used to measure achievement of program learning outcomes in every domain of learning.

Direct Assessment Methods:
- **National or regional exam results (developed outside the institution for use by a wide group of students using national or regional norms).**
- **Capstone Project or Course.**
- **Entrance/Exit Interviews/exams.**
- **Performance (participation in campus and/or community events, volunteer work, presentations, internships, art performances, etc).**
- **Course e-Portfolio.**

Indirect Assessment Methods:
- **Alumni Survey.**
- **Course Evaluation Survey.**
- **Employer/industry Survey.**
- **Program Advisory Committee minutes.**
- **Teaching staff surveys on the program.**

- **Observations (Information can be collected while observing "events" such as classes, social gatherings, activities, group work, study sessions, etc. Observation can provide information on student behaviours and attitudes).**
- **Syllabus Review.**
- **Second Examiner checklist (to improve it so that to include: course learning outcomes).**
- **Course report.**
- **External assessor report.**
- **Accreditation review.**

D. Thesis and Its Requirements (if any)

1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

- The course MAT 7399 Ph.D. Dissertation is a required course with 18 credit hours.
- After passing the comprehensive exam, the student is required to enroll in the Ph. D. dissertation (MAT 7399).
- The academic advisor guides the students in selection of the appropriate research supervisor who has experience in that particular field.
- The academic advisor guides the student about suitability of the research project and coordinates between the student and prospective supervisor.
- Some broad guidelines can be provided form the graduate committee for the students that can be used in the selection of the supervisor and research topic.
- The Graduate studies committee appoints the supervisor for each student that fulfills the condition for the registration in the thesis.
- The thesis subject should be innovative and original.
- Periodic review of thesis progress based on the supervisory evaluation process adopted by the department.

2. Scientific Supervision:

(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/ mechanisms of the scientific supervision and follow-up)

- The supervisor should be highly competent in the area of research with substantial background in the essential methodology for the proposed project. The department also considers supervisor's research and publication record.
- The supervisor is responsible for writing the thesis proposal.
- The supervisor should be contributed actively to the thesis.
- The supervisor should guide, coach and support the student in the research during the dissertation.
- The supervision should help the student to define the research goals, and then support him in achieving them.
- Regular meeting and discussions with the supervisor to discuss the student's progress.
- The supervisor allocates weekly office hours advertised on his /her own timetable to help the Ph.D. student on any academic problems/difficulties.
- Provide constructive and timely feedback on the scientific work of the PhD student.
- Support the student growth through encouraging training opportunities and attending scientific conferences.
- Help the student in overcoming several hurdles that he/her may occur during the thesis.
- Guide the student in data analyses, and thesis write-up in addition to the preparation of thesis presentation.
- Prepare the student for thesis presentation and defense.

f. Description of assessment procedures (including mechanism for verification of standards)

- **The assessment procedures for the PhD dissertation are explained in Figure 1.**
- **The mechanism for verification of the standards comprises:**

(1) *Strategies for Obtaining Student Feedback on Effectiveness of supervising:* **Students are asked at the end of the dissertation to fill in an anonymous questionnaire on their assessment of the dissertation. The forms will be analyzed, and the summary of results posted to the head of the department for evaluation.**

(2) *Other Strategies for Evaluation of Supervising by the Program/Department Instructor:* **At the end of each semester of the dissertation preparation, the supervisor should complete a report, including a summary of student questionnaire responses appraising progress and identifying changes that need to be made if necessary.**

(3) *Processes for Improvement of Supervising:* **Student evaluations and the supervisor's report will be used to decide improving parameters.**

(4) *Verification of Standards of Student Achievement:* **The dissertation is examined by two external referees. The written dissertation and the presentation will be assessed by a dissertation committee.**

(5) *Planning arrangements for periodically reviewing dissertation work progress and planning for improvement:* **Twice annually following the Teaching, Learning, and Supervising Assessment Process adopted by the Department Council.**
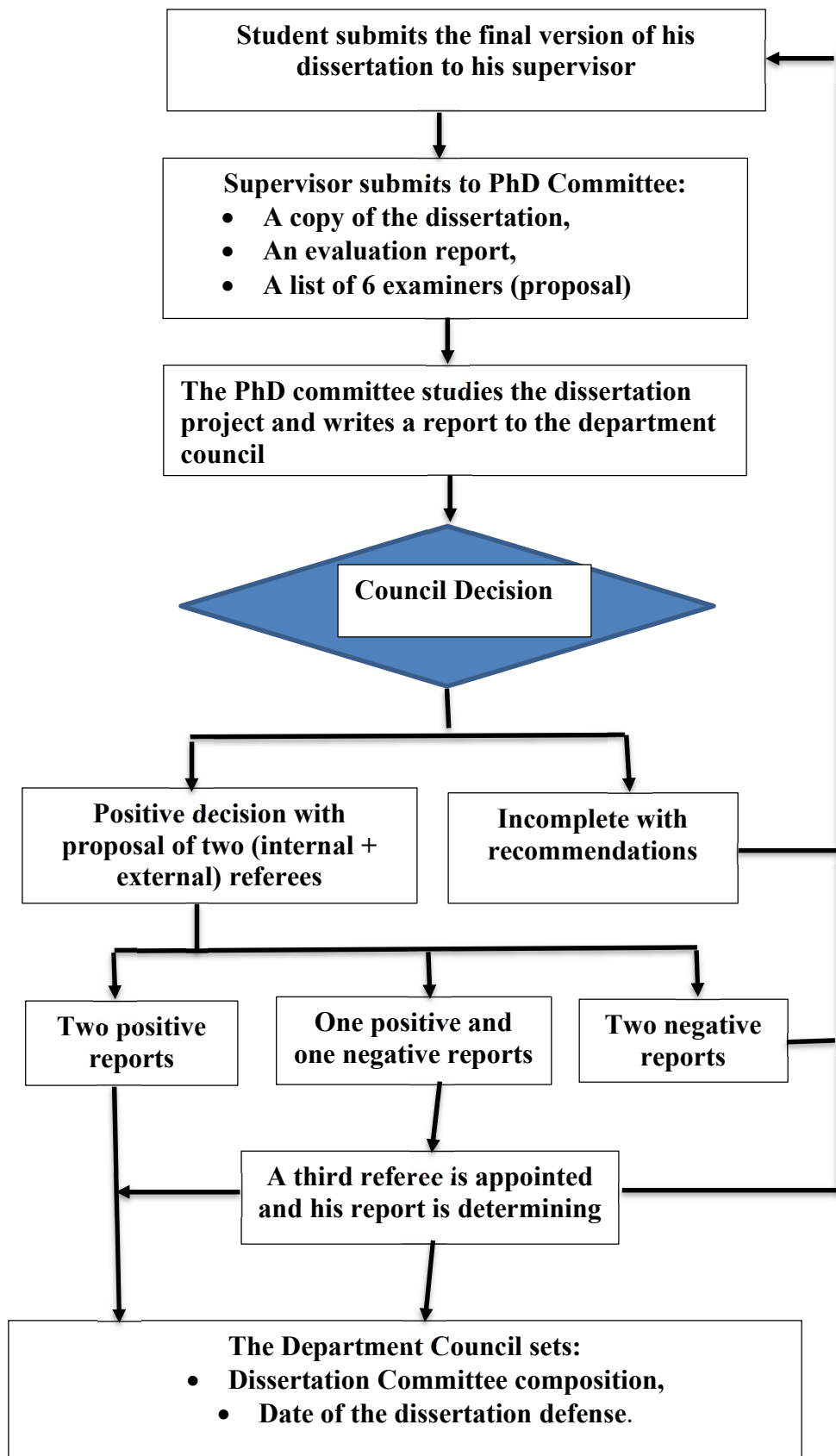
```
┌─────────────────────────────────────────┐
│   Student submits the final version of   │ ◄──────┐
│      his dissertation to his supervisor  │        │
└─────────────────────────────────────────┘        │
                    │                               │
                    ▼                               │
┌─────────────────────────────────────────┐        │
│   Supervisor submits to PhD Committee:   │        │
│   • A copy of the dissertation,          │        │
│   • An evaluation report,                │        │
│   • A list of 6 examiners (proposal)     │        │
└─────────────────────────────────────────┘        │
                    │                               │
                    ▼                               │
┌─────────────────────────────────────────┐        │
│   The PhD committee studies the          │        │
│   dissertation project and writes a      │        │
│   report to the department council       │        │
└─────────────────────────────────────────┘        │
                    │                               │
                    ▼                               │
              ◆ Council Decision ◆                  │
```

Council Decision

Positive decision with proposal of two (internal + external) referees

Incomplete with recommendations

Two positive reports

One positive and one negative reports

Two negative reports

A third referee is appointed and his report is determining

The Department Council sets:
- **Dissertation Committee composition,**
- **Date of the dissertation defense.**

E. Student Admission and Support:

1. Student Admission and Transfer Requirements, and Courses Equivalency

In addition to the uniform regulations of graduate studies in Saudi universities, applicants to the PhD program must satisfy the following:

- Have a master degree in mathematics from an accredited Saudi university, or a recognized international university, with a grade-point average (GPA) of 3.75 or higher on a scale of 5.00 or equivalent.
- Pass the written test arranged by the Mathematics Graduate Committee (MGC) in the department.
- The written test may be waived if the applicant took the GRE math-subject text and earned at least a score of 500 during the two last years.
- Pass an interview administered by MGC.
- Earn a score of at least 50 in the TOEFL IBT test, or the equivalent score of any similar recognized international tests.
- Enroll as a full-time student.
- The student should provide a written statement of purpose.

Selection Criteria:

Applicants will be selected according to the following criteria:
1) 50% for the GPA in master's degree.
2) 25% for the written test.
3) 25% for the interview

Study Policies:

In addition to items 20-23 and 32-40 under the unified regulations for graduate studies in Saudi universities, students comply with the following policies:

1) The department may require passing some deficiency courses, depending on the academic records of the applicant.

2) All deficiency courses must be completed within one academic year before enrolling in the PhD program.

3) Every student enrolled in the program will be assigned an academic advisor by the Mathematics Graduate Committee (MGC) to guide the student in the degree plan and provide help in issues related to the academic program.

4) The study scheme in the program is based on coursework and a dissertation.

5) Seventy credit hours are required for the PhD program, distributed in four academic years.

6) The duration of study to obtain the degree is not less than four academic years but not more than five academic years. However, the college council may recommend extension depending on the student's situation with no more than one academic year.

7) The program consists of eleven courses – with 4-5 credit hours for each – including comprehensive exams, and a dissertation of 18 credit hours.

8) After passing the first trimester courses, the student chooses one of the two tracks available in the program: pure mathematics track (PM) or applied mathematics track (AM).

9) After passing the first and the second trimester's courses, the student will be assigned a research supervisor to guide and provide help in completing the coursework requirements, and determine the specific field of the dissertation.

10) With the approval of the academic supervisor, the student in the third and fourth trimesters enrolls in three elective courses.

11) The student may not choose a course that has been already studied by the student during the master's program, or any course equivalent to it.

12) A student who fails a mandatory course is required to retake it and pass it.

13) A student who fails an elective course may substitute it with another elective.

14) In the fifth and sixth trimesters, and after completing all required courses, the student enrolls in the courses: "Reading and Research (1)" (MAT 7291), and "Reading and Research (2)" (MAT 7292), respectively.

15) The comprehensive examination consists of two written exams and one oral exam.

16) The two written exams must be in the following subjects: "Analysis" for all students, and either "Algebra" for PM track students, or "Partial Differential Equations & Numerical Analysis" for AM track students.

17) The student is required to pass the two comprehensive written exams and the oral one after the sixth trimester.

18) A student who fails in one of the written comprehensive written exams or both exams can retake the exam at most once. A student who fails in the oral comprehensive written exam can retake the exam at most once.

19) After passing the three comprehensive exams, the student enrolls for the PhD dissertation.

20) Students of special needs may be allowed to enroll in only four courses for each academic year, after the approval of the supervisor and the Mathematics Graduate Committee.

21) The language of study, exams, and dissertation is English.

Grading Policy:

1) The minimum passing score for a course is 70 on a scale of 100.

2) The minimum passing score for each comprehensive exam is 70 on a scale of 100.

3) Comprehensive exams are offered twice a year.

4) The Mathematics Graduate Committee appoints a subcommittee to prepare and administer the written exam in each subject. The subcommittee will consist of at least three graduate faculty members who are eligible to supervise PhD dissertations.

5) Subcommittees for comprehensive oral exams are appointed by the Mathematics Graduate Committee. They consist of three faculty: the Thesis advisor and two other faculty members who are eligible to supervise PhD dissertations, provided that one of them is the dissertation supervisor of the examiner.

Dismissal:

In addition to the unified regulations for graduate studies in Saudi Universities, the student will be subject to dismissal in the following cases:

1) If the student has been accepted to the program, but didn't register during the official time of registration.

2) If the student's GPA in the deficiency courses was below the equivalent of "very good" during two trimesters.

3) If the student withdraws or ceases attending class for one semester, without a legitimate excuse approved by departmental.

4) If the student's GPA is below the equivalent of "very good" in two consecutive trimesters".

5) If the student fails twice in one of the courses.

6) If the student fails twice in one of the comprehensive written exams.

7) If the student fails twice in the comprehensive oral exam.

8) If the dissertation is disapproved by the dissertation committee, or has been rejected after discussion.

9) If the students did not complete all the requirements of the degree within five years.

2. Student Counseling Services
(academic, career, psychological and social)

- The lecturer for each course allocates 6 office hours per week advertised on his /her own timetable, and reserved as part of his/her teaching schedule to help the students on any academic problems/difficulties.

- The student is able to get individual consultation and academic advice appointment with teaching staff via e-mail or phone calls.

- A list of teaching staff members with their room numbers, their phone numbers and their e-mail addresses are given in the Department website.

- Each admitted student in the program has an academic advisor who can help him (her) to select courses and locate resources.

- Academic Advisors are assigned to admit students by MGC upon starting the program to guide and help him (her) throughout his (her) academic program.

- The Academic Advisor is trained to know all degree requirements from beginning to end, and can assist him (her) in planning courses in an appropriate sequence.

- On the other hand, a departmental advisor can provide information, advice and support in relation to accommodation, emotional difficulties, assessment of needs and provision of support related to disability, student funding, general welfare, student discipline and complains and part-time work.

3. Support for Special Need Students
(low achievers, disabled, gifted and talented)

Student with special needs or disabilities may be allowed to take only four courses (instead of six courses) in a year upon the consent of (MGC) and the supervisor.

F. Teaching and Administrative Staff

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	Mathematics	Pure/Applied	None	10	5	15
Associate Professors	Mathematics	Pure/Applied	None	10	5	15
Assistant Professors	Mathematics	Pure/Applied	None	5	5	10
Technicians and Laboratory Assistants	None			0	0	0
Administrative and Supportive Staff	None			0	0	0
Others (specify)	None			0	0	0

2. Professional Development

2.1 Orientation for New Teaching Staff
Describe briefly the process used for orientation of new, visiting and part-time teaching staff

One of the main tasks of MGC is:
- **Equipping new faculty members with the knowledge and skills that they will need in their first trimester in order to progress toward types of objectives, targeted skills, assessment methods, nature of research, role of funding and graduate students etc...**
- **Explaining to the new, visiting or part time teaching staff how to design, and deliver a course and assess the learning outcomes.**
- **Explaining to the new, visiting or part time teaching staff the nature of the university environment and constraints.**

2.2 Professional Development for Teaching Staff
Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

- **Teaching staff are encouraged to attend trainings and workshops for improving their teaching and student assessment skills.**
- **Teaching staff members are encouraged to reflect on their teaching and research, in order to develop innovative teaching methods and knowledge of research.**
- **Indeed, each year University awards are presented to academic staff for outstanding contributions to teaching, research supervision and publishing.**

G. Learning Resources, Facilities, and Equipment

1. Learning Resources.
Policies and Procedure for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

For the planning and acquisition of learning resources the MGC proceeds as follows:

STEP 1: **For each course the MGC assigned a faculty members committee to do the followings:**
- **Course description (preliminary syllabus),**

- **Recommend Lists of Required Textbooks, Essential References Materials (Journals, Reports, *etc.*), Recommended Textbooks and Reference Material (Journals, Reports, *etc.*), Electronic Materials (eg. Web Sites, social media, Blackboard, etc.), and other learning material such as computer-based programs/CD, professional standards or regulations and software.**

STEP 2: MGC collects learning resources of all courses and submits the required lists to the Head of the department to get the approbation of the department council.

STEP 3: After the department council approbation the Department Head asks the College Dean to provide the Required lists of Learning Resources through the University Central Library and/or the IT Deanship.

2. Facilities and Equipment

Policies and Procedure for providing and quality assurance of Facilities and Equipment (Library, laboratories, medical facilities, classrooms, etc.).

For the planning and acquisition resources for library, laboratories, and classrooms the MGC proceeds as follows:

STEP 1: Evaluation of the locals assigned for graduated programs: Library (equipped with textbooks and references provided by the Central Library), Laboratories (equipped with appropriate computers and software), and classrooms.

STEP 2: In the shortage case of supplies the MGC will report that to the Department Head in order to ask the College Dean to provide such supplies through the University Central Library and/or the IT Deanship.

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

N.A.

H. Program Management and Regulations

1. Program Management
1.1 Program Structure. (including boards, councils, units, committees, etc.)
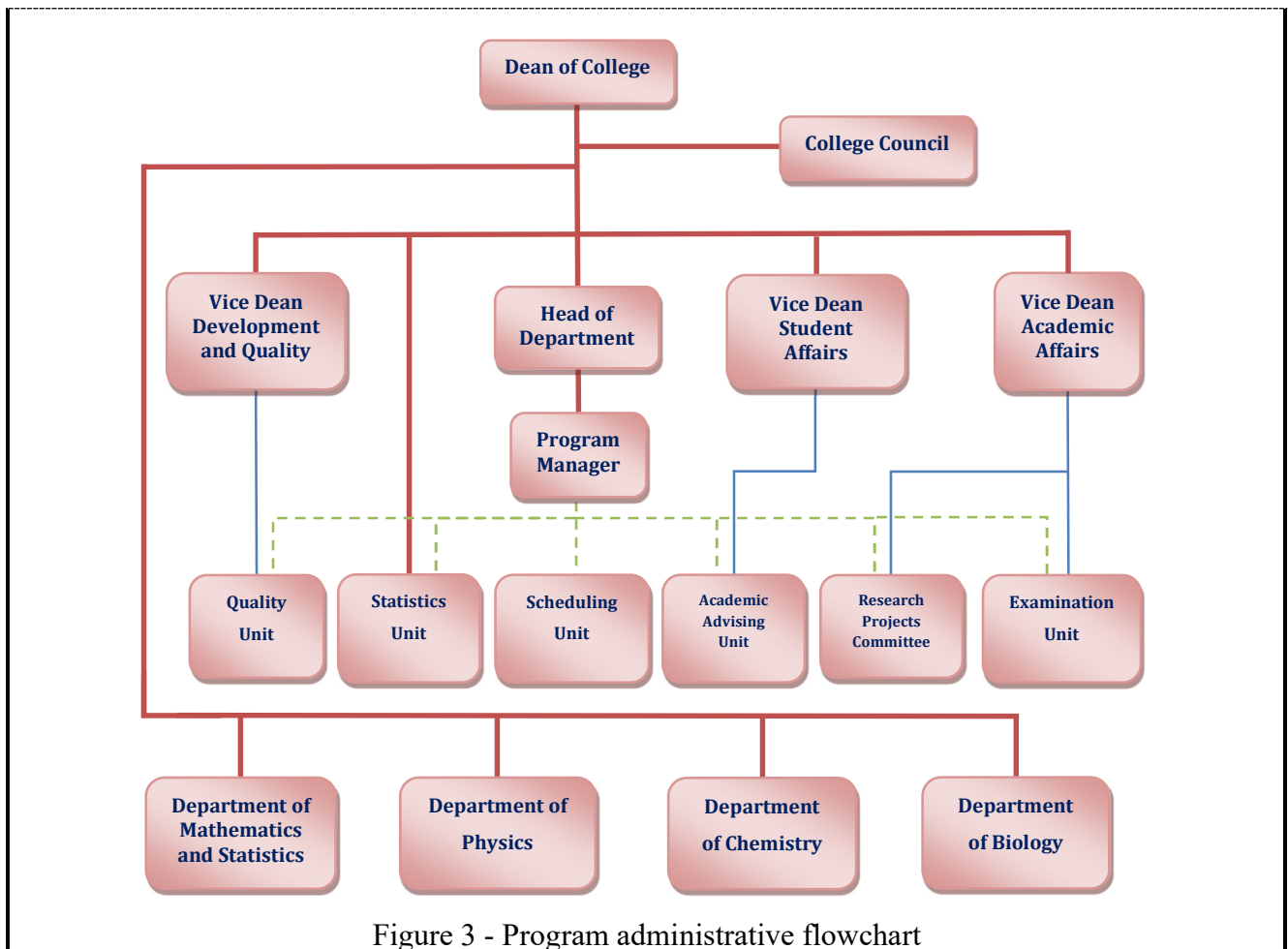
Figure 3 - Program administrative flowchart

1.2 Stakeholders' Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)

- The department of Mathematics and Statistics has an Advisory committee who helps it to improve and develop the program. In this Advisory committee, there are representatives of faculty, employers, graduates and current students.
- Questionnaire of the graduated student employers of the program.

2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

Same regulations as for the university higher studies procedures in addition of some regulations mentioned in students' rubric.

I. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

https://imamuedusa-my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EZA2RBjov-dFj1uzGyvHQN8BxmRp20mCEwZ1oWr8wJsbvQ?e=MhYenb

Program review and its development is periodically assessed through the following processes:

- Courses reports are submitted to the program manager every trimester.
- Appropriate teaching staff committee is in the charge of assessment and modification.
- Prepare and monitor the annual program report.

- Conduct and analyze surveys opinion of the students about the courses and the program.
- Conduct and analyze surveys opinion of the employers about the program.
- Program manager reviews the proposals submitted by the previous committees and makes appropriate decision after approbation of the department council.
- Monitor a global review for the development of the program periodically each five years if necessary.

All the previous processes follow the Teaching\Learning Quality Assurance Process Diagram:
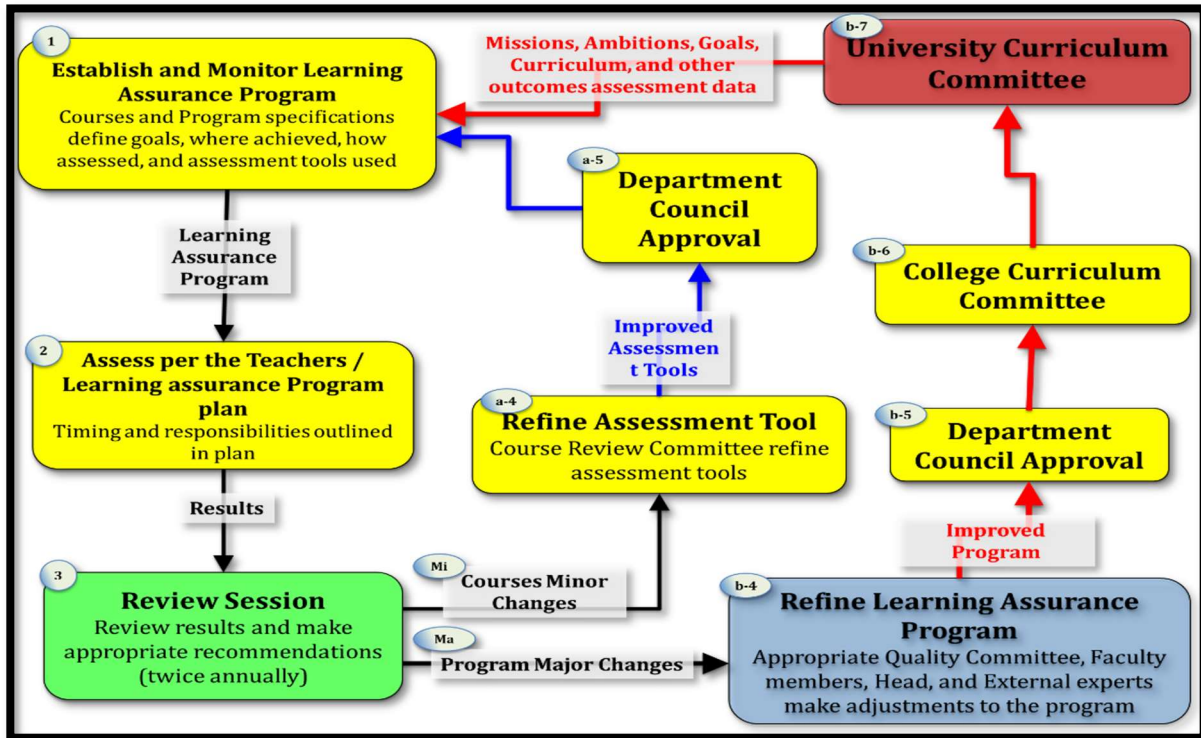

Figure 2 - Teaching\Learning Quality Assurance Process Diagram

2. Program Quality Monitoring Procedures
• **At the end of each trimester the course instructor should complete a course report, including a summary of student questionnaire responses appraising progress and identifying changes (course contents and/or textbooks and/or references) that need to be made if necessary. In the case where changes are recommended the MGC report that to the Department Head in order to take actions.** • **Students are asked at the end of this course to fill in an anonymous questionnaire on their assessment of the course. The forms will be analyzed, and the summary of results will be reported to the Department Head for evaluation and then to take actions.**
3. Arrangements to Monitor Quality of Courses Taught by other Departments.
N.A.
4. Arrangements Used to Ensure the Consistency between Main Campus and Branches (including male and female sections)
• **The students of both campuses are taught at the same time, in the same section, and by the same teacher.** • **Furthermore, they have the same exams, homeworks, and required reports.**
5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).
N.A.

6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes

First, it "Mastered" level of performance with be a node of assessment of opportunity. The Mechanism, for demonstrating achievement of the learning outcomes, is an ongoing process which consists seven phases:

Phase 1. Data-collection Methodology: Direct and Indirect (listed in Section C.6. above)
Phase 2. Benefits and Drawbacks of Data-collection Methods
Phase 3. Evaluate the Choice of Data-collection Method
Phase 4. Collect data
Phase 5. Interpret evidence
Phase 6. Report the resulting information and document the analysis.
Phase 7. Identify Areas for Improvement and Enhancement.

At each stage (cycle of assessment), we use the resulting information in form of report into account to document, analyze, and improve the all components of the program based on the appropriate key performance indicators (KPIs). As follows a table summing the long run plan for assessing each track and All PLOs.

PLOs	Stage 1 (one year)	Stage 2 (one year)	Stage 3 (one year)	Stage 4 (one year)
K1			✓	✓
K2			✓	✓
S1	✓	✓		
S2		✓	✓	
S3				✓
S4				✓
V1				✓
V2				✓
V3				✓

7. Evaluation of Program Quality Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
leadership	dean	evaluation report	end of academic year
effectiveness of teaching & assessment	program leader, faculty, independent reviewers, students	surveys, interviews, visits	end of the trimester, during the trimester
learning resources	employers, faculty, graduates, students	surveys, interviews	end of the trimester, during the trimester

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)
8. Program KPIs*
The period to achieve the target (2-4) years.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	KPI-PG-1	Percentage of achieved indicators of the program operational plan objectives	85%	Surveys, Department data	Yearly starting from the first promotion
2	KPI-PG-2	Students' Evaluation of quality of learning experience in the program	4.60	surveys	Twice per year
3	KPI- PG-3	Students' evaluation of the quality of the courses	4.50	surveys	Twice per year
4	KPI-PG-4	Students' evaluation of the quality of scientific supervision	4.60	surveys	Yearly starting from the first promotion
5	KPI-PG-5	Average time for students' graduation	7 years	Graduation data	Yearly starting from the first promotion
6	KPI-PG-6	Rate of students dropping out of the program	0.3	Graduation data	Yearly starting from the first promotion
7	KPI-PG-7	Graduates' employability	90%	Graduation Unit	Yearly starting from the first promotion
8	KPI-PG-8	Employers' evaluation of the program graduates' competency	4.80	surveys	Yearly starting from the first promotion
9	KPI-PG-9	Students' satisfaction with the provided services	4.60	surveys	Yearly
10	KPI-PG-10	Ratio of students to faculty members	14.1	Department data	Yearly
11	KPI-PG-11	Percentage of faculty members' distribution based on academic ranking	20% Assis. Prof. 30% Assoc. Prof 50% Prof.	Department data	Yearly
12	KPI-PG-12	Proportion of faculty members leaving the program	0.1	Department data	Yearly
13	KPI-PG-13	Satisfaction of beneficiaries with learning resources	4.60	surveys	Yearly
14	KPI-PG-14	Satisfaction of beneficiaries with research facilities and equipment	4.60	surveys	Yearly
15	KPI-PG-15	Percentage of publications of faculty members	80%	Department data	Yearly
16	KPI-PG-16	Rate of published research per faculty member	2.00-4.00	Department data	Yearly
17	KPI-PG-17	Citations rate in refereed journals per faculty member	60	Department data	Yearly
18	KPI-PG-18	Percentage of students' publication	30%	Department data	Yearly starting from the first promotion
19	KPI-PG-19	Number of patents, innovative products, and awards of excellence	1.00	Department data	Yearly

* including KPIs required by NCAAA

j. Specification Approval Authority

Council / Committee	**MATHEMATICS AND STATISTICS DEPARTMENT COUNCIL**
Reference No.	**11/1444**
Date	**22/04/1444 (16/11/2022)**