



## Annual Program Report

<b>Program Name:</b>	<b>M.Sc. in Mathematics</b>
<b>Qualification Level:</b>	<b>Level 7</b>
<b>Department:</b>	<b>Mathematics and Statistics</b>
<b>College:</b>	<b>College of Science</b>
<b>Institution:</b>	<b>Imam Mohammad Ibn Saud Islamic University</b>
<b>Academic Year:</b>	<b>2021/2022</b>
<b>Main Location:</b>	<b>Main campus for male students</b>
<b>Branches offering the Program:</b>	<b>King Abdullah for female students</b>

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## A. Implementation of Previous Action Plan

Considering the recommendations of previous year annual report, list the planned actions and their status.

S	Planned Actions	Responsibility of Action	Planned Completion Date	Level of Completion		If Not Completed	
				Completed	Not Completed	Reasons	Proposed Actions
1	Implementing the PhD in Mathematics program	Head of Dept.	Sept. 2022		✓	Postponed	Action 2
2	Review the content of MSc in Mathematics in conformity with the new plan of PhD in Mathematics	Head of Dept.	Sept. 2022	✓			
3	Review the enrollment requirements for the M.Sc. in Mathematics	Head of Dept.	Jan. 2022	✓			
4	Recruiting distinguished teaching staff to contribute to the implementation of graduate programs.	Head of Dept.	Sept. 2022	✓			Continuing

## B. Program Statistics

### 1. Students Statistics (in the year concerned)

No.	Item	Results
1	Number of students who started the program	4
2	Number of students who graduated	2
3	Number of students who completed major tracks within the program (if applicable)	
	a.	N.A.
	b.	N.A.
	c.	N.A.
4	a. Number of students who completed the program in the minimal time	2
5	a. Percentage of students who completed the program in the minimal time (Completion rate)	50%
6	Number of students who completed an intermediate award specified as an early exit point (if any)	N.A.
7	Percentage of students who completed an intermediate award specified as an early exit point (if any)	N.A.
<p><b>Comment on any special or unusual factors that might have affected the completion rates:</b></p> <p><b>Factors affecting low completion rate are:</b></p> <ol style="list-style-type: none"> <li>Some students enrolled in the program are withdrawn (for real).</li> <li>These students do not follow the high level of the taught courses.</li> </ol>		

### 2. Cohort Analysis of Current Graduate Batch

For the program of M.Sc. in Mathematics, the students are enrolled during the first semester only.

Student Categories		Total cohort enrollment	Withdrawn	Retained till year end	Not passed	Passed	Passing rate
Years							
Three Years Ago	M	0	0	0	0	0	--
	F	9	3	6	0	6	100%
	Total	9	3	6	0	6	100%
Two Years Ago	M	4	3	1	1	0	0%
	F	7	1	6	4	3	50%
	Total	11	3	8	5	2	50%
Last Year	M	0	0	0	0	0	--
	F	4	0	4	2	2	50%
	Total	4	0	4	2	2	50%
Current Year	M	3	0	3	2	1	33%
	F	8	3	3	2	1	33%
	Total	11	3	6	4	2	33%

**Comments on the results:**  
**Some students are not committed to their levels of study. This causes irregularity in their cursus.**

\* add more rows for further years ( if needed )

\*\* attach separate cohort analysis report for each branch

### 3. Analysis of Program Statistics

(including strengths, areas for improvement, and priorities for improvement)

<b>Strengths :</b> <b>Low number of students in classes.</b>
<b>Areas for Improvement:</b> <b>Completion rate, 33%.</b> <b>Retention rate, 55%.</b>
<b>Priorities for Improvement:</b> <b>Improve the quality of the enrolled students to be appropriate to the intended level of study by imposing some pre-courses for the program.</b>

## C. Program Learning Outcomes Assessment

### 1. Program Learning Outcomes Assessment Results.

#	Program Learning Outcomes	Assessment Methods (Direct and Indirect)	Performance Target	Results
<b>Knowledge and Understanding</b>				
K1	Demonstrate a solid understanding of advanced topics in Mathematics.	D1	Top 20%	In progress
K2	Outline the areas of specialization through studying specific topics relevant to research in Mathematics.	I1	3.4/5	3.3/5
<b>Skills</b>				
S1	Apply advanced mathematical knowledge to analyse problems and develop innovative solutions.	D5	50%	47%
S2	Develop critical skills with regard to literature searching, appraising and evaluating from a variety of sources	D2	100%	100%

	and synthesizing the results.			
S3	Communicate in a clear and concise manner orally, on paper and using IT.	D3	2.7/5	3/5
S4	Make efficient use of computer for acquiring, analysing, and presenting information.	I3	Very good	Very good
<b>Values</b>				
V1	Demonstrate integrity, professional and academic ethics, participation in finding constructive solutions to some societal issues and a commitment to responsible citizenship.	I2	Very good	Very good
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.	D2	100%	100%
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.	D4	good	good
<b>Comments on the Program Learning Outcome Assessment results.</b>				
<b>The PLOs are updated to follow the new NQF.</b>				

\* Include the results of measured learning outcomes during the year of the report according to the program plan for measuring learning outcomes

\*\* Attach a separate report on the program learning outcomes assessment results for male and female sections and for each branch (if any)

## 2. Analysis of Program Learning Outcomes Assessment

(including strengths, Areas for Improvement, and priorities for improvement)

<b>Strengths :</b>
<ul style="list-style-type: none"> <li>• The accurate assessment of the Program Learning Outcomes helps to find and detect the point of weakness in the academic program.</li> <li>• The Courses Learning Outcomes of the key courses need revising to serve the Program Learning Outcomes.</li> </ul>
<b>Areas for Improvement:</b>
More attention MUST be paid to Courses Learning Outcomes, especially those key courses.
<b>Priorities for Improvement:</b>
Revise Courses Learning Outcomes for key courses with paying more attention while delivering these Courses Learning Outcomes to improve Program Learning Outcomes assessment.

## D. Summary of Course Reports

### 1. Teaching of Planned Courses / Units

List the courses / units that were planned and not taught during the academic year, indicating the reasons and compensating actions.

Course	Units/Topics	Reasons	Compensating Actions
<b>MAT 624 MAT 628</b>	<b>Pure Mathematics</b>	<b>The students have chosen the Applied Mathematics Track</b>	<b>None</b>

### 2. Courses with Variations

List courses with marked variations in results that are stated in the course reports, including: (completion rate, grade distribution, student results, etc.), and giving reasons for these variations and actions taken for improvement.

Course Name & Code	variation	Reasons for variation	Actions taken
<b>MAT 611 (first semester)</b>	<b>Only 42% pass the course</b>	<b>Since this course is one of the first courses in the program, it is one of its filters. Moreover, it is a theoretical course.</b>	<b>None</b>

### 3. Result Analysis of Course Reports

(including strengths, Areas for Improvement:, and priorities for improvement)

<b>Strengths :</b>
<ul style="list-style-type: none"> <li>• <b>All courses had been taught as scheduled, with no variation.</b></li> <li>• <b>The successful implementation of online learning via Blackboard, and other platforms (Zoom, ...).</b></li> <li>• <b>The experiences added to students and teaching staff in teaching via Blackboard.</b></li> </ul>
<b>Areas for Improvement:</b>
<ul style="list-style-type: none"> <li>• <b>Provide students with tools that help them in online learning.</b></li> <li>• <b>Department library and study room are required.</b></li> <li>• <b>Study room for the students with supported IT preferences.</b></li> </ul>
<b>Priorities for Improvement:</b>
<b>Establish a departmental library with associated study room, both equipped with PC and printers, and connected to the internet.</b>

## E. Program Activities

### 1. Student Counseling and Support

Activities Implemented	Brief Description *
<b>Orientation for freshmen students (if needed).</b>	<b>Introduction to their study plan; course assessment; progression; student responsibilities; student expectations; college rules and regulations.</b>
<b>One advising session at least</b>	<b>The Graduate Studies Committee (GSC) plays the role of students advisor and addresses all student concerns that relate to an area identified in the orientation. It must meet assigned students at least once for each semester. GSC is responsible for:</b>

	<ul style="list-style-type: none"> <li>• <b>Exceptional cases for the students;</b></li> <li>• <b>Major Selection is the responsibility of the student with the concertation of GSC.</b></li> </ul>
<b>Comment on Student Counseling and Support **</b>	
<b>None</b>	

\* including action time, number of participants, results and any other statistics.

\*\* including performance evaluation on these activities

## 2. Professional Development Activities for Faculty and Other Staff

Activities Implemented	Brief Description *
<b>None</b>	
<b>Comment on Professional Development Activities for Faculty and Other Staff **</b>	
<b>Back from a pandemic period.</b>	

\* including action time, number of participants, results and any other statistics.

\*\* including performance evaluation on these activities

## 3. Research and Innovation

Activities Implemented	Brief Description *
<b>184 Refereed Journal Papers</b>	<b>Published papers during the year 2021</b>
<b>10 Scientific Seminars</b>	<b>Faculty members gave online seminars presenting results of some of their papers</b>
<b>Comment on Research and Innovation **</b>	
<b>None</b>	

\* including action time, number of participants, results and any other statistics.

\*\* including performance evaluation on these activities

## 4. Community Partnership

Activities Implemented	Brief Description *
<b>None</b>	
<b>Comment on Community Partnership **</b>	
<b>Back from a pandemic period.</b>	

\* including action time, number of participants, results and any other statistics.

\*\* including performance evaluation on these activities

## 5. Analysis of Program Activities

(including strengths, Areas for Improvement:, and priorities for improvement)

<b>Strengths:</b>
<b>Direct and indirect assessment for every LO is performed accurately and instantly.</b>
<b>Areas for Improvement:</b>
<ul style="list-style-type: none"> <li>• <b>Performance evaluation for counselling is not assessed due to the pandemic.</b></li> <li>• <b>Revise CLOs for key courses to improve the assessment values of PLOs.</b></li> <li>• <b>Students extracurricular activities need more attention.</b></li> <li>• <b>Libraries and study rooms supported with IT means.</b></li> </ul>

**Priorities for Improvement:**

- **Libraries and study rooms supported by IT means.**
- **Students' extracurricular activities need more attention.**
- **Revise CLOs for key courses to improve the assessment values of PLOs.**



## F. Program Evaluation

### 1. Evaluation of Courses

Course Code	Course Title	Student Evaluation (Yes-No)	Other Evaluations (specify)	Developmental Recommendations
MAT 611	Measure and Integration	Yes	No	None
MAT 621	Advanced Linear Algebra	Yes	No	None
MAT 641	Numerical Analysis	Yes	No	None
MAT 613	Functional Analysis	Yes	No	None
MAT 623	Algebra (1)	Yes	No	None
MAT 631	Partial Differential Equations	Yes	No	None
MAT 671	Topology	Yes	No	None
MAT 624	Algebra (2)	Yes	No	None

### 2. Students Evaluation of Program Quality

Evaluation Date :	Number of Participants: 11 Students (1 male and 10 females)
Students Feedback	Program Response
<b>Strengths:</b> <b>Questions:</b> <ol style="list-style-type: none"> <li>Q7-The Program gave me a good insight into my major.</li> <li>Q8-I expect what I have studied will benefit me in my future career.</li> <li>Q13-The program improved my skills to work in a team.</li> <li>Q14-The program helped me improve my performance.</li> </ol> <ul style="list-style-type: none"> <li>Q15- The program helped me improve my academic achievement skills.</li> </ul>	<ol style="list-style-type: none"> <li>Q7-Average Score 3.7.</li> <li>Q8-Average score 4.1</li> <li>Q13-Average Score 3.9</li> <li>Q14-Average Score 3.65</li> </ol> Q15-Average Score 3.7
<b>Areas for Improvement:</b> <b>Questions:</b> <ol style="list-style-type: none"> <li>Q22-There are adequate facilities and facilities for practicing various activities.</li> <li>Q21-Computer equipment was sufficient for my needs.</li> </ol> <ul style="list-style-type: none"> <li>Q17-I am satisfied with the sources of information in the library and with their quality.</li> </ul>	<ol style="list-style-type: none"> <li>Q22-Average Score 2.85.</li> <li>Q21-Average score 2.54</li> </ol> Q17-Average Score 2.73
<b>Suggestions for improvement:</b> <ul style="list-style-type: none"> <li>Libraries and study rooms supported by IT means.</li> </ul>	

\* Attach report on the students evaluation of program quality

### 3. Other Evaluations None

(e.g. Evaluations by independent reviewer, program advisory committee, and stakeholders (e.g., faculty members, alumni, and employers))

<b>Evaluation method :</b>	<b>Date:</b>	<b>Number of Participants :</b>
<b>Summary of Evaluator Review</b>		<b>Program Response</b>
<b>Strengths:</b> <ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>		
<b>Points for Improvements::</b> <ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>		
<b>Suggestions for improvement</b> <ul style="list-style-type: none"> <li>•</li> <li>•</li> </ul>		

\* Attach independent reviewer's report and stakeholders' survey reports ( if any)



#### 4. Key Performance Indicators (KPIs)

List the results of the program key performance indicators (including the key performance indicators required by the National Center for Academic Accreditation and evaluation)

No	KPI	Target Benchmark	Actual Value	Internal Benchmark	Analysis	New Target Benchmark
1	Percentage of achieved indicators of the program operational plan objectives	88%	85%	91%	Good Achievement	90%
2	Students' Evaluation of quality of learning experience in the program	4.70	4.63/5	4.50/5	Good Achievement	4.70/5
3	Students' evaluation of the quality of the courses	4.50	3.78/5	4.53/5	Needs improvement	4.50/5
4	Students' evaluation of the quality of scientific supervision	4.70	4.80/5	4.60/5	Excellent Achievement	4.70/5
5	Average time for students' graduation	2.5 years	2.6 years	2.30 years	Good Achievement	2.5 years
6	Rate of students dropping out of the program	0.3	0.46	0.62	Needs improvement	0.3
7	Graduates' employability and enrollment in PhD programs	90%	50% (based on obtained replies)	80%	Needs improvement	90%
8	Employers' evaluation of the program graduates' competency	4.50	4.5/5	In progress	Good Achievement	4.50/5
9	Students' satisfaction with the provided services	4.60	3.88/5	3.50/5	Needs improvement	4.60/5
10	Ratio of students to faculty members	2:1	2:1	2:1	Good Achievement	2:1
11	Percentage of faculty members' distribution based on academic ranking	70% Prof. 30% Assoc. Prof.	75% Prof. 25% Assoc. Prof.	70% Prof. 30% Assoc. Prof.	Excellent Achievement	70% Prof. 30% Assoc. Prof.
12	Proportion of faculty members leaving the program	0.1	0.00	0.08	Excellent Achievement	0.1
13	Satisfaction of beneficiaries with learning resources	4.30	4.18/5	3.95/5	Good Achievement	4.30
14	Satisfaction of beneficiaries with research facilities and equipment	4.20	4.10/5	2.50/5	Needs improvement	4.20
15	Percentage of publications of faculty members	70%	35%	61%	Weakness in the female section	50%
16	Rate of published research per faculty member	1.00-2.00	2.00	1.74	Weakness in the female section	2.5
17	Citations rate in refereed journals per faculty member	60	26	50	Weakness in the female section	60
18	Percentage of students' publication	5%	5%	9%	Good Achievement	8%

					(Usually, MSc students do not publish papers)	
19	Number of patents, innovative products, and awards of excellence	0	0	1.00	Patents in Mathematics are rare	1.00
<b>Comments on the Program KPIs and Benchmarks results:</b> <ul style="list-style-type: none"> <li>• There is a big gap in the research between the male and the female section that should be adjusted by involving more the female staff in projects and international publishing awards funded by the university.</li> <li>• A committee should be created for KPIs evaluation and surveys.</li> </ul>						

## 5. Analysis of Program Evaluation

(including strengths, Areas for Improvement:, and priorities for improvement)

<b>Strengths :</b> <ul style="list-style-type: none"> <li>• Ratio of students to teaching staff.</li> <li>• The adequacy of academic and career counseling.</li> <li>• Teaching staff leaving the Department for reasons other than age retirement.</li> <li>• Teaching staff participating in professional development activities.</li> <li>• Teaching staff with at least one refereed publication.</li> <li>• Papers or reports presented at academic conferences.</li> </ul>
<b>Areas for Improvement:</b> <ul style="list-style-type: none"> <li>• Graduation Rate.</li> <li>• A committee should be created for KPIs evaluation and surveys.</li> <li>• Establish Alumni Unit to follow and monitor graduates and stakeholders.</li> <li>• Create departmental and central libraries, and provide study rooms for students equipped with computers and printers.</li> <li>• Finish the English language website of the Department.</li> <li>• Encourage teaching and other staff actively engaged in community service activities.</li> <li>• Enlarge the subscription of electronic research resources to more important journals and databases.</li> </ul>
<b>Priorities for Improvement:</b> <ul style="list-style-type: none"> <li>• Establish Alumni Unit to follow and monitor graduates and stakeholders.</li> <li>• A committee should be created for KPIs evaluation and surveys.</li> <li>• Encourage teaching and other staff actively engaged in community service activities.</li> <li>• Provide the subscription of electronic research resources to more important journals and databases.</li> </ul>

## G. Difficulties and Challenges Faced Program Management

Difficulties and Challenges	Implications on the Program	Actions Taken
Lack of faculty members in some advanced fields.	Some elective courses are not taught till the start of the M.Sc. program.	Appoint faculty members in these fields.

There are no departmental libraries for students and study rooms.	The student cannot find and increase his information.	Create departmental and central libraries, and provide study rooms for students equipped with computers and printers .
There is not enough publicity about the Department.	The weak turnout at the college, which causes the acceptance of students who are not qualified to accommodate technical courses, and thus the level of graduates.	Make adequate publicity for the Department, inform the community about it, and is a technical Department.

\*Internal and external difficulties and challenges

## H. Program Improvement Plan

No.	Priorities for Improvement	Actions	Action Responsibility	Date		Achievement Indicators	Target Benchmark
				Start	End		
1	Conformity between MSc and PhD programs	Achieving the review of MSc in Mathematics plan and content in conformity with the new plan of PhD in Mathematics	Head of Dept.	Sept. 2021	Sept. 2023	Reviewed	Done
2	Having more opportunities for our students to continue their studies	Implementing the PhD in Mathematics program	Head of Dept.	Sept. 2022	Sept. 2023	Implemented	Done
3	Attracting distinguished staff for MSc program	Recruiting distinguished teaching staff to contribute to the implementation of graduate programs.	Head of Dept.	Mar. 2023	Sept. 2023	Number of recruited distinguished staff	3

## I. Report Approving Authority

Council / Committee	DEPARTMENT COUNCIL	COLLEGE COUNCIL
Reference No.	21/1444	20/1444
Date	27/07/1444 (19/02/2023)	28/07/1444 (20/02/2023)

## J. Attachments:

- A separate cohort analysis report for male and female sections and for each branch.
- A report on the program learning outcomes assessment results for male and female sections and for each branch (if any)
- A report on the students evaluation of program quality.
- Independent reviewer's report and other survey reports (if any)