Ministry of higher education
Majmaah university
College of Science
Department of Mathematics

وزارة التعليم العالي
جامعة المجمعة
كلية العلوم
قسم الرياضيات

Program Specification
Department of Mathematics
College of Sciences, Zulfi
1436-1437 H
2015-2016

Kingdom of Saudi Arabia
National Commission for
Academic Accreditation &
Assessment

المملكة العربية السعودية
الهيئة الوطنية للتقويم
والاعتماد الأكاديمي

Program Specification

جامعة المجمعة
Majmaah University

Zulfi, College of Sciences
Bachelor of Science in Mathematics

Contents

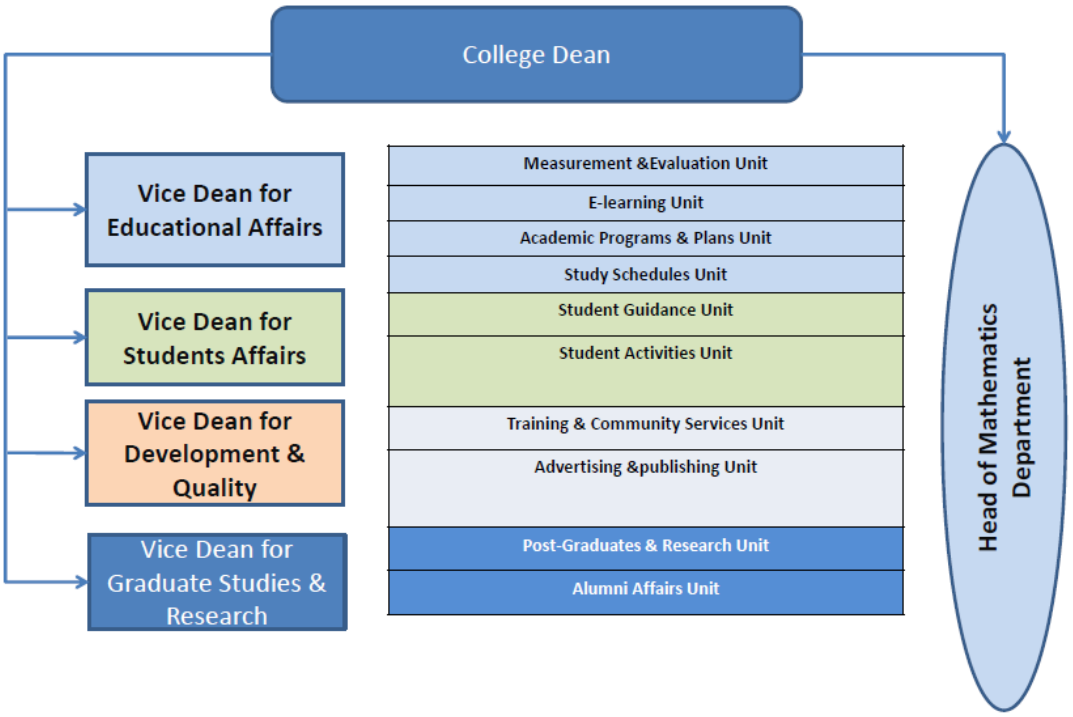
Program Specification

1. Institution: **Majmaah University** **Date : 15/4/2015**

2. College/Department: **Zulfi, College of Sciences / Department of Mathematics**

3. Dean Dr. Mohamed Al- Aboodi

4. Insert program administrative flow chart



5. List all branches offering this program

Branch 1. Mathematics Program – College of Science at Al-Zulfi (male)

A. Program Identification and General Information

1. Program title and code Bachelor of Science in Mathematics / MATH.
2. Total credit hours needed for completion of the program 137 credit hours , 8 semesters (4 years).
3. Award granted on completion of the program Bachelor of Science in Mathematics
4. Major tracks/pathways or specializations within the program (eg. transportation or structural engineering within a civil engineering program or counseling or school psychology within a psychology program) None
5. Intermediate Exit Points and Awards (if any) (eg. associate degree within a bachelor degree program) Not applicable
6. Professions or occupations for which students are prepared. (If there is an early exit point from the program (e.g diploma or associate degree) include professions or occupations at each exit point) 1- High school teachers In Ministry of Education. 2- Mathematicians in government ministries and institutions, and private sectors that require mathematical skills such as: Ministry of Finance, Saudi Arabian Monetary Agency, General Organization for Social Insurance, Central Department of Statistics and Information, Public Pension Agency, Banks, Research Centers, ARAMCO, SABIC, etc. 3- Meritorious students pursue higher studies and ultimately join as faculty in colleges, technical colleges and universities in the Kingdom of Saudi Arabia.
7. (a) New Program [ ] Planned starting date [ ] (b) Continuing Program [X] Year of most recent major program review 1434 H (2014 G) Organization involved in recent major review (e.g. internal within the institution, accreditation review by: Internal within the institution

8. Name of program chair or coordinator. If a program chair or coordinator has been appointed for the female section as well as the male section, include names of both.

Prof/ Dr. Adel Mohamed Zaki Department Chairman

9. Date of approval by the authorized body (MoHE for private institutions and Council of Higher Education for public institutions).

Campus Branch/Location	Approval By	Date
Zulfi, College of sciences Establishment. Zulfi, Mathematics Program Establishment.	Qassim University	3/4/1426 (11/5/2005)
	MOHE	30/4/1426(7/6/2005)
	High Approval	5/8/1426 (9/9/2005)
Study Start in Zulfi, College of Sciences		1427-1428(2006/2007)
Study Start in Mathematics Program		
Majmaah University Establishment.	MOHE	14/7/1430(7/7/2009)
	High Approval	3/9/1430(24/8/2009)
First batch of Graduation in Zulfi, College Science		1431(2010)
First batch of Graduation in Mathematics Program		
Study Transition to new building at Zulfi		1431(2012)

Location if not on main campus or locations if program is offered in more than one location.

Main Campus in Al - Zulfi, for males

- **The decision of the Board of higher education with the establishment of Zulfi, Faculty of science**

Kingdom of Saudi Arabia
Higher Education Council
General Secretariat

About: College Establishment - Qassim University

Decision of the Board of higher education			High Approval	
Number	**Meeting**	**Date**	**Number**	**Date**
16/37/1426	**37**	**30/4/1426**	**9683 /MB**	**5/8/1426**

establishment of the Faculty of Sciences in Zulfi, Qassim University; includes the following departments:

- **Mathematics.**
- **Physics .**
- **computer and information sciences.**
- **medicine laboratories.**

- **The decision of the Board of higher education with the establishment of Majmaah University**

Kingdom of Saudi Arabia
Higher Education Council
General Secretariat

About: Establishment of three Governmental Universities in Elkharg, Shaqraa and Majmaah

Decision of the Board of higher education			High Approval	
Number	**Meeting**	**Date**	**Number**	**Date**
4/1430	**Scroll Meeting**	**14/7/1430**	**7205 /MB**	**3/9/1430**

B. Program Context

1 Explain why the program is needed.

a. Summarize economic reasons, social or cultural reasons, technological developments, national policy developments or other reasons.

- High demand for duly qualified graduates from the Department of Mathematics to fill the positions in the areas mentioned in A- 6 above.
- Increasing interest of the local community in higher education.

b. Relevance to Institution/College Mission.

Scientific excellence through plans and programs enables students to acquire the knowledge and skills needed to compete in the labor market.

a. Relationship (if any) to other programs offered by the institution/college/department. Does this program offer courses that students in other programs are required to take? Yes [X] No [ ]

If yes, what should be done to make sure those courses meet the needs of students in the other programs?

Communication and coordination with the relevant departments

b. Does the program require students to take courses taught by other departments? Yes [X] No [ ]

If yes, what should be done to make sure those courses in other departments meet the needs of students in this program?
Considering students evaluations who have completed these courses

3. Do the students who are likely to be enrolled in the program have any special needs or characteristics that should be considered in planning the program? (eg. Part time evening students, limited IT or language skills) Yes [X] No [ ] If yes, what are they?

They should have a background in general sciences (Mathematics, Physics etc.), English language (as a second language), Computer skills and an aptitude to learn Mathematics.

4. What modifications or services are you providing for special needs applicants?

Students have to be prepared in their first year in the college of science by giving them courses in English language, Basic mathematics, Computer skills, etc.

C. Mission, Goals and Objectives

1. Program Mission Statement:

The mission of the Mathematics Program is to provide the society with graduates, very well equipped with mathematical knowledge, skills and techniques, able to compete in the labor market and pursue postgraduate schools.

2. Program Goals

Graduates of the mathematics program will be able to :

1 - Explain and deliver professionally the most complicated Mathematical Basis and ideas orally and in writing with ethical responsibility.

2- Get the best opportunity in labor market and to be accepted in the highest quality Postgraduate schools.

3. major objectives of the program

Goals and Objectives Graduates will be able to	Major Strategies	Measurable Indicators
Apply various general education competencies through the study of Mathematics.	1. Ability to identify and solve relevant mathematical, and to explore formulations and solutions using alternative approaches 2. Preparing reports and oral presentation 3. Thinks holistically: sees the whole as well as the parts Supports design	1.Midterm and exams 2. Presentation and quizzes 3.Assignments and group discussions 4. Start each chapter by general idea and the benefit of its study. Demonstrate the course information and principles through lectures. 5. Provide main ways to deal with the exercises. 6. Solve some examples during the lecture.
Apply their knowledge in	1.Techniques and skills (such as modelling, simulation, experimentation,	1.Interviews 2.Numbers of postgraduates 3. Encourage the student to

modern industry or teaching, or secure acceptance in high-quality graduate programs in Mathematics.	measurement and data analysis 2.Research and gather information 3.Use of computers	look for some complicated problems in the different references. 4. Ask the student to attend lectures for practice solving problem
Learn and explain Mathematics within a professional, legal and ethical responsibility	1.Understanding of ethical responsibility 2.Understanding of professional responsibility	1. Ask the students to search the internet and use the library. Encourage them how to attend lectures regularly by assigning marks for attendance. 2. Teach them how to cover missed lectures. 3. Give students tasks of duties.
Transmit mathematical ideas both orally and in writing Work effectively individual and within a team.	1.Write technical report and deliver oral presentation 2.Reading of technical magazines, Journals, and research articles	1. Create working groups with peers to collectively prepare: Solving problems and use the internet for some topics. 2. Give the students task to measure their: mathematical skills, computational analysis and problem solving. 3. Encourage the students to ask good question to help solve the problem.

D. Program Structure and Organization

E. List the core and elective program courses offered each semester from Prep Year to graduation using the below Curriculum Study Plan Table (A separate table is required for each branch IF a given branch/location offers a different study plan).

A program or department manual should be available for students or other stakeholders and a copy of the information relating to this program should be attached to the program specification. This information should include required and elective courses, credit hour requirements and department/college and institution requirements, and details of courses to be taken in each year or semester. Refer to the Department and College Manuals for more information.

Study Plan

At the beginning of the academic year 1433-1434 H the college of sciences joined the program of the preparatory year in the university. This requires the development of the program study plan to be compatible with the new situation. The updated plan has passed the official stages and it has been approved from the academic affairs in the department, the college and the university. This study became applicable with the new students starting from the academic year 1434-1435H.

General Scheme of the Study Plan

Curriculum of the Department of Mathematics (Study Plan)
Requirements for the degree of Bachelor of Science (Mathematics)
to obtain a Bachelor's degree in mathematics, the student must successfully finish 137 credit hours.

Curriculum Study Plan Table

* **Prerequisite** – list course code numbers that are required prior to taking this course.

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	College or Department
Prep Year	PENG 111	English Language 1	Required	-	8	College
	PMTH112	Introduction to Mathematics 1	Required	-	2	College
	PCOM 113	Computer Skills	Required	-	2	College
	PSSC 114	Communication and Education Skills	Required	-	2	College
	PENG 121	English Language 2	Required	PENG111	6	College
	PMTH127	Introduction to Mathematics 2	Required	PMTH112	4	College
	PENG 123	Scientific and Engineering English Language	Required	PENG111	2	College
	PPHS 128	Physics	Required	-	3	College
Level 3	MATH231	Mathematics Basis	Required	PMTH12 7	4	Department
	STAT201	Statistics and probability(1)	Required	PMTH12 7	3	Department

	MATH201	Calculus 1	Required	PMTH12 7	4	Department
	MATH271	Introduction to geometry	Required	PMTH12 7	3	Department
	ARAB 101	Language Skills	Required	-	2	University
	SALM 101	Islamic Culture	Required	-	2	University
Level 4	MATH202	Calculus 2	Required	MATH201	4	Department
	MATH203	Calculus in several variables	Required	MATH202*	4	Department
	MATH204	Vector Calculus	Required	MATH271+ MATH202*	4	Department
	MATH241	Linear Algebra 1	Required	MATH231	4	Department
	-----	University Elective	Elective	-	2	University
Level 5	MATH321	Introduction to Differential Equations	Required	MATH203	4	Department
	MATH351	Numerical Analysis 1	Required	MATH241 +MATH321*	4	Department
	MATH352	Linear Programming	Required	MATH241	4	Department
	MATH353	Mathematical applications in Computers	Required	MATH203 +MATH351*	2	Department
	MATH344	Number Theory	Elective	MATH231	2	Department
	SALM102	Islam and society construction	Required	SALM 101	2	University
Level 6	MATH322	Mathematical Methods	Required	MATH321	4	Department
	MATH 342	Group Theory	Required	MATH241	4	Department
	STAT302	Statistics and probability (2)	Required	STAT201 +MATH203	4	Department
	MATH381	Real Analysis 1	Required	MATH203	3	Department
	MATH334	Discrete Mathematics	Elective	MATH231	3	Department
Level 7	MATH423	Partial Differential Equations	Required	MATH 321	4	Department
	MATH443	Rings and Fields	Required	MATH 342	3	Department
	MATH472	Introduction to Topology	Required	MATH381	3	Department
	MATH473	Introduction to Differential Geometry	Required	MATH241 +MATH204	4	Department
	SALM 103	Islam Economic System	Required	SALM 101	2	University
	MATH412	Topics in	Elective	MATH321	3	Department

		Applied Mathematics				
	-------	Field training		Pass 100 Units	0	Department
Level 8	MATH482	Real Analysis 2	Elective	MATH 381	3	Department
	MATH483	Complex Analysis	Required	MATH 381	4	Department
	MATH484	Introduction to functional Analysis	Required	MATH472	3	Department
	---	University Elective	Elective	-	2	University
	MATH499	Project	Required	Pass 100 Units	3	Department
	---	Free course		-	3	

The Elective Program Courses Requirements:

course code	Course name	Credit Hour	Pre-Requisite	Co-Requisite
MATH344	Number Theory	2(2+0+0)	MATH231	
MATH332	Graph Theory	2(2+0+0)	MATH231	
MATH345	Linear Algebra 2	2(2+0+0)	MATH241	
MATH433	Mathematical logic	2(2+0+0)	MATH231	
MATH485	Fourier Analysis	2(2+0+0)	MATH423+MATH483	
MATH334	Discrete Mathematics	3(2+1+0)	MATH231	
MATH454	Optimization Technique	3(2+1+0)	MATH352	
MATH405	Calculus of Variation	3(2+1+0)	MATH321	
MATH482	Real Analysis 2	3(2+1+0)	MATH 381	
MATH335	Mathematics History	2(2+0+0)	MATH231	
MATH412	Topics in Applied Mathematics	3(2+1+0)	MATH321	
MATH311	Financial Mathematics	2(2+0+0)	MATH202	
MATH455	Numerical Analysis 2	3(2+1+0)	MATH351	
STAT404	Data Analysis	2(2+0+0)	STAT302	
STAT303	Inventory Models	2(2+0+0)	STAT+302 MATH352	

- **Optional Program Requirements**

The student selects (10 credit hours)

- **Training requirements:**

(Training courses or practical education or experience in the field):

Students are trained in a Government or private agencies commensurate with the theme and the duration of training for at least six weeks with at least four hours a week, an official letter is needed for trained Faculty students indicating the quality of training , the extent and progress of the student.

Prerequisite:

100 credits

The general structure of the plan

Courses Requirement	Percentage of completion (%)	The number of credit hours
University	8.75%	12
Faculty	21.17%	29
Department	68.61%	94
Free courses	1.45%	2
Total	100	137

Requirements and electives:

Requirement	Type of requirement	Total credit hours	The percentage of the total hours of study plan	The observations of the Committee
University	Compulsory	12	8.75%	
Faculty	Compulsory	29	21.16 %	
	Optional	---------	----------	
Department	Compulsory	84	6 1. 31%	
	Optional	10	7.29%	
Free courses	2		1.45%	
Total hours and rates	137		100%	

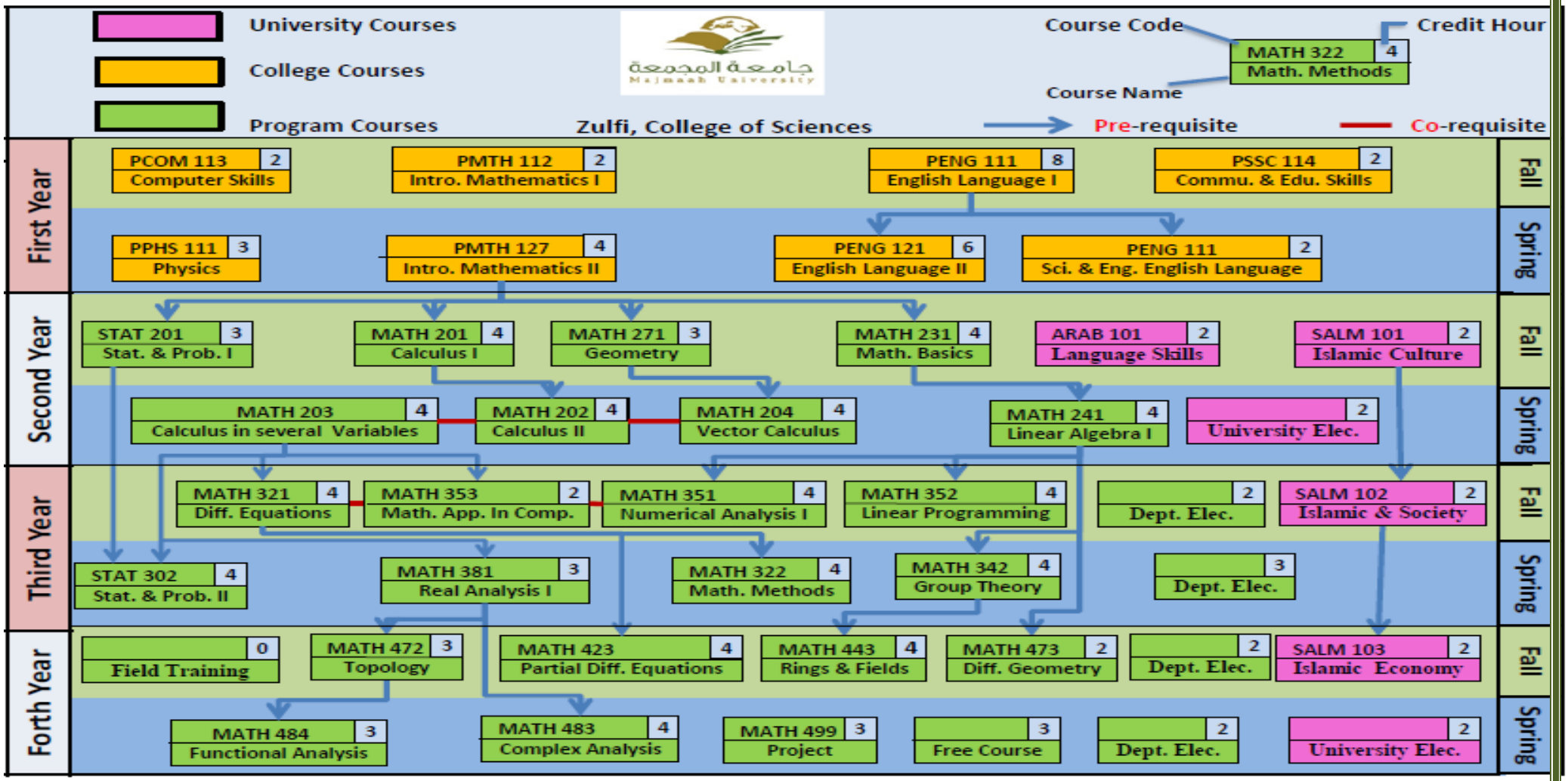
University requirements:

Course code	Course name	Credit Hour	Prerequisite	Reviews
SALM 101	Introduction to Islamic culture	2(2+0+0)		
SALM 102	Islam and society construction	2(2+0+0)		
SALM 103	Islam of economic system	2(2+0+0)		
ARAB101	Language Skills	2(2+0+0)		
…….	University Elective	2(2+0+0)		
……	University Elective	2(2+0+0)		

Faculty compulsory requirements:

Course code	Course name	Credit Hour	Prerequisite	Reviews
PENG 111	English Language 1	8(2+0+6)		
PENG 121	English Language 2	6(2+0+4)		
PMTH 112	Introduction to Mathematics1	3(2+1+0)		
PMTH 127	Introduction to Mathematics 2	4(4+0+0)		
PPHS 128	Physics	3(2+0+1)		
PCOM 113	Computer Skills	2(2+0+0)		
PENG 123	Scientific and Engineering English Language	1(1+0+1)		
PSSC114	Communication and Education Skills	2(1+0+1)		

Study Plan for Mathematics Program


University Courses
College Courses
Program Courses
جامعة المجمعة
Majmaah University
Zulfi, College of Sciences
Course Code
Credit Hour
MATH 322
4
Math. Methods
Course Name
Pre-requisite
Co-requisite
First Year
Second Year
Third Year
Forth Year
Fall
Spring
PCOM 113 2 Computer Skills
PMTH 112 2 Intro. Mathematics I
PENG 111 8 English Language I
PSSC 114 2 Commu. & Edu. Skills
PPHS 111 3 Physics
PMTH 127 4 Intro. Mathematics II
PENG 121 6 English Language II
PENG 111 2 Sci. & Eng. English Language
STAT 201 3 Stat. & Prob. I
MATH 201 4 Calculus I
MATH 271 3 Geometry
MATH 231 4 Math. Basics
ARAB 101 2 Language Skills
SALM 101 2 Islamic Culture
MATH 203 4 Calculus in several Variables
MATH 202 4 Calculus II
MATH 204 4 Vector Calculus
MATH 241 4 Linear Algebra I
2 University Elec.
MATH 321 4 Diff. Equations
MATH 353 2 Math. App. In Comp.
MATH 351 4 Numerical Analysis I
MATH 352 4 Linear Programming
2 Dept. Elec.
SALM 102 2 Islamic & Society
STAT 302 4 Stat. & Prob. II
MATH 381 3 Real Analysis I
MATH 322 4 Math. Methods
MATH 342 4 Group Theory
3 Dept. Elec.
0 Field Training
MATH 472 3 Topology
MATH 423 4 Partial Diff. Equations
MATH 443 4 Rings & Fields
MATH 473 2 Diff. Geometry
2 Dept. Elec.
SALM 103 2 Islamic Economy
MATH 484 3 Functional Analysis
MATH 483 4 Complex Analysis
MATH 499 3 Project
3 Free Course
2 Dept. Elec.
2 University Elec.

Mathematics courses Description

(Distribution decisions with respect to levels)

First level (pre-primary)						
Code Course	Course name	Credit Hour	Self-Study/week	Total Work load/semester	Pre-requisite	Reviews
PENG 111	English Language 1	**8(2+0+6)**	15	390	----	
PMTH 112	Introduction to Mathematics 1	**2(2+0+0)**	6	105	----	
PCOM 113	Computer Skills	**2(1+0+1)**	6	105	----	
PSSC 114	Communication and Education Skills	**2(1+0+1)**	6	105	----	
Total units		**14**		705		

Second level (pre-primary)				
Code Course	Course name	Credit Hour	Prerequisite	Reviews
PENG 121	English Language 2	6(2+0+4)	PENG111	
PMTH 127	Introduction to Mathematics 2	4(4+0+0)	PMTH 112	
PENG 123	English for engineering and scientific disciplines	2(1+0+1)	PENG111	
PPHS 128	Physics	3(2+0+1)		
Total units		15		
Third level				
Code Course	**Course name**	**Credit Hour**	**Prerequisite**	**Reviews**
MATH 231	**Mathematics Basis**	**4(3+1+0)**	**PMTH 1 27**	
STAT 201	**Statistics and probability 1**	**3(2+1+0)**	**PMTH 1 27**	
MATH 201	**Calculus (1)**	**4(3+1+0)**	**PMTH 1 27**	
MATH 271	**Introduction to Geometry**	**3(2+1+0)**	**PMTH 1 27**	
ARAB101	**Language Skills**	**2(2+0+0)**	**----**	
SALM 101	**Islamic culture**	**2(2+0+0)**	**.....**	
Total units		**18**		

Forth level				
Code Course	**Course name**	**Credit Hour**	**Prerequisite**	**Reviews**
MATH 202	**Calculus (2)**	**4(3+1+0)**	**MATH 201**	
MATH 203	**Calculus in several variables**	**4(3+1+0)**	**MATH 202***	
MATH 204	**Vector Calculus**	**4(3+1+0)**	**MATH 202 * +MATH 271**	
MATH 241	**Linear algebra (1)**	**4(3+1+0)**	**MATH 231**	
……..	**University Elective**	**2(2+0+0)**	**MATH 201**	
Total units		**18**		

Fifth level				
Code Course	**Course name**	**Credit Hour**	**Prerequisite**	**Reviews**
MATH 321	**Introduction to Differential Equations**	**4(3+1+0)**	**MATH 203**	

MATH 351	**Numerical analysis (1)**	**4(3+1+0)**	**MATH 241 +MATH 321**	
MATH 352	**Linear programming**	**4(3+1+0)**	**MATH 241**	
MATH 353	**Mathematical applications in Computers**	**2(1+1+0)**	**MATH 203 +MATH 351**	
----	**Department Elective**	**2(2+0+0)**	**-**	
SALM10 2	**Islam and society construction**	**2(2+0+0)**	**SALM 101**	
Total units		**18**		

Sixth level

Code Course	Course name	Credit Hour	Prerequisite	Reviews
MATH 322	Mathematical Methods	**4(3+1+0)**	MATH 321	
MATH 342	Group Theory	**4(3+1+0)**	MATH 241	
STAT302	Statistics and probability (2)	**4(3+1+0)**	STAT 201 +MATH 203	
MATH 381	Real Analysis (1)	**3(2+1+0)**	MATH 203	
---------	Department Elective	**3(2+1+0)**	---	
Total units		**18**		

Seventh level

Code Course	Course name	Credit Hour	Prerequisite	Reviews
MATH 423	Partial Differential Equations	**4(3+1+0)**	MATH 321	
MATH443	Rings and Fields	**3(2+1+0)**	MATH 342	
MATH 472	Introduction to Topology	**3(2+1+0)**	MATH 381	
MATH 473	Introduction to Differential Geometry	**4(3+1+0)**	MATH 241 +MATH 204	
SALM 103	Economic system in Islam	**2(2+0+0)**	SALM 101	
-------	Department Elective	**2(2+0+0)**	---------	
-------	Field training	**0**	Pass 100 Units	
Total units		**18**		

eighth level

Code Course	Course name	Credit Hour	Prerequisite	Reviews
.....	Department Elective	**3(2+1+0)**	.....	
MATH 483	Complex Analysis	**4(3+1+0)**	MATH 381	
MATH 484	Introduction to functional analysis	**3(2+1+0)**	MATH 472	
---	University Elective	**2(2+0+0)**		
MATH 499	Project	**4(2+2+0)**	Pass 100 units	
---	Free course	**2(2+0+0)**		
Total units		**18**		

Credit point system

- Study system is on the basis of levels.
- The program consists of 8 levels (4 years).
- One level lasts for one semester.

- Total credit hours are 137 hour.
- One credit hour equivalent to one hour lecture or two tutorial/lab hours per week.

Students Workload

Level (Semester)	Credit Hours	Contact hours (class hours)/week		Average of independent Study hours/week	Total workload/ week	Total workload/semester
		Lectures	Tutorials or labs			
1	14	6	8	26	40	600
2	15	9	6	27	42	630
3	18	14	4	30	48	730
4	18	14	4	34	52	780
5	18	14	4	32	50	760
6	18	13	5	32	50	750
7	18	14	4	32	50	750
8	18	13	5	32	50	760
Grand total	**137**				**382**	**5750**

Student-Teacher ratio for the academic year 1435/1436 is **10:1**.

Faculty average load/Semester is **18** credit hours.

2. Development of Special Student Characteristics or Attributes

List any special student characteristics or attributes beyond normal expectations that the institution, college or department is trying to develop in all of its students. (eg. Eg. Particularly good at creative problem solving, leadership capacity, commitment to public service, high level of skills in IT). For each special attribute indicate the teaching strategies and student activities to be used to develop it.

Special Attributes	Strategies or Student Activities to Develop these Special Attributes	Evidences
Highly qualified and competitive graduates	Diversity in courses, texts and faculty members	Ability of graduates to peruse their graduate studies in high ranked universities and the success in their careers

2. Required Field Experience Component (if any) (Eg. internship, cooperative program, work experience)

Summary of practical, clinical or internship component required in the program. Note that a more detailed Field Experience Specification comparable to a course specification should also be prepared for any field experience required as part of the program. **(Training courses or practical education or experience in the field):** Students are trained in a Government or private agencies commensurate with the theme and the duration of training for at least six weeks with at least four hours a week, an official letter is needed for trained Faculty students indicating the quality of training , the extent and progress of the student. **Prerequisite:** 100 credit Hours
a. Brief description of field experience activity
b. List the major intended learning outcomes for the program to be developed through the field experience
c. At what stage or stages in the program does the field experience occur? (eg. year, semester) After completing 100 credit hours.
d. Time allocation and scheduling arrangement. (Eg. 3 days per week for 4 weeks, full time for one semester) 3 days per week for 6 week
e. Number of credit hours; 2 credit Hours

3. Project or Research Requirements (if any)

a. Brief description Research project. The topics and contents vary depending on the ability of the student and the courses that he has completed.
b. List the major intended learning outcomes of the project or research task. Ability to undertake research work by investigating and analyzing mathematical results.
c. At what stage or stages in the program is the project or research undertaken? (eg. year, semester) After completing 100 credit hours.
d. Number of credit hours 3 credit hours.
e. Summary description of provisions for student academic advising and support. Weekly meetings and discussions between the student and his supervisor.

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

- Copies of the written project are provided to the examiners. The student defends his project before the examiners by presenting a short resume' of his project followed by the relevant question and answer session. Finally the deserving grade is awarded to the student.

4. Learning Outcomes in Domains of Learning, Assessment Methods and Teaching Strategy:

NQF Learning Domains and Learning Outcomes		Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
On successful completion of this programme, students should be able to			
a1	**Define** and **write** fundamentals and concepts of mathematics.	☒ Class discussion / Close reading and text analysis. ☒ Collaborative learning / pair work / group work. ☒ Assignments. ☒ Discussions with students motivating them to make maximum use of the course book. ☒ Encourage students to make extensive use of material on the web.	☒ Quizzes, ☒ Midterm exams ☒ Final-exams. ☒ General report ☒ Homework ☒ Assignments. ☒ Group presentation ☒ Exams to measure different mathematical ideas ☒ - project
a2	**Recall** and **reproduce** fundamentals and concepts of General sciences and Computer skills.		
a3	Continue to **acquire** and **outline** mathematical and statistical knowledge and skills appropriate to professional activities		
2.0	**Cognitive Skills**		
On successful completion of this programme, students should be able to			
b1	**Construct** mathematical arguments and proofs and **apply** the underlying unifying structures of mathematics.	☒ Lectures, ☒ seminars, ☒ Encourage the student to look for some complicated problems in the different references. ☒ Homework assignments. ☒ Problem-solving strategy ☒ Cooperative learning strategy ☒ Strategy group discussions	☒ Quizzes, ☒ Midterm exams ☒ Final-exams. ☒ Exams to measure different mathematical ideas ☒ Computers software program ☒ Group discussion database ☒ self-teaching ☒ Oral discussion ☒ Indirect problems
b2	**Develop** and **explain** critical thinking skills to solve problems that can be modeled mathematically		
3.0	**Interpersonal Skills & Responsibility**		

On successful completion of this programme, students should be able to			
c1	**Demonstrate** the work independently and within a team	☒ Discussions through: ☒ lectures ☒ Tutorial classes. ☒ Team work ☒ Assignments. ☒ Projects ☒ Give students tasks of duties ☒ Training students to build good relationships with their counterparts and collaborate with others	☒ Group, Presentation, Oral questions ☒ Competition between different groups ☒ Students to take responsibility to help managing the class ☒ Assigning different students to take over teaching to others ☒ Teamwork assignments ☒ General reports
c2	**Illustrate** and bear responsibility for different situations		
c3	**Analyze** and realize the codes of ethics and their importance.		
4.0	**Communication, Information Technology, Numerical**		
On successful completion of this programme, students should be able to			
d1	**Communicate** mathematical ideas, both orally and in writing	☒ Lectures ☒ Using computer laps ☒ Projects ☒ Creating working groups with peers to collectively prepare: solving problems and search the internet for some topics. ☒ Give the students tasks to measure their: mathematical skills, computational analysis and problem solving.	☒ Exams, Giving different types of tests to measure the mathematical background of students Making some individual oral tests discussing previous lectures in the start of new lectures ☒ Computers software program ☒ Group discussion database Keep choosing types of tests and exams to measure different mathematical ideas
d2	Critically **interpret** numerical and graphical data.		
5.0	**Psychomotor**		

Program Learning Outcome Mapping Matrix

Identify on the table below the courses that are required to achieve the program learning outcomes. Insert the program learning outcomes, according to the level of instruction, from the above table below and indicate the courses and levels that are required to teach each one; use

your program's course numbers across the top and the following level scale.

Levels: I = Introduction R = Reinforce E = Emphasize

Allocation of Responsibilities for Learning Outcomes to Optional Courses

I = Introduce, R = Reinforce, E = Emphasize

M :=Math, PE=PENG, PM=PMTH, PC=PCOM, PPH=PPHS
A=ARAB, SA=SALM, ST=STAT

	Course Offerings NQF Learning Domains and Learning Outcomes	PENG 111	PMTH 112	PCOM 113	PSSC 114	PENG 121	PMTH 127	PENG 123	PPHS 128	SALM 101	SALM 102	SALM 103	ARAB 101	MATH 201	STAT 201	MATH 202	MATH 203	MATH 204	MATH 231	MATH 241	MATH 271	STAT302	MATH 321
Knowledge	a1. **Define** and **write** fundamentals and concepts of mathematics**.**		X				X							X		X	X	X	X	X	X		
	a2**. Recall** and **reproduce** fundamentals and concepts of General sciences and Computer skills.			X					X					X	X			X				X	X
	a3. Continue to **acquire** and **outline** mathematical and statistical knowledge and skills appropriate to professional activities																				X		
Cognitive Skills	b1**. Construct** mathematical arguments and proofs and **apply** the underlying unifying structures of mathematics.		X				X			X	X	X	X			X				X	X		
	b2**. Develop** and **explain** critical thinking skills to solve problems that can be modeled mathematically														X			X				X	
Interpersonal Skills & Responsibility	c1**. Demonstrate** the work independently and within a team		X	X	X	X	X		X					X		X	X	X	X	X			X
	c2**. Illustrate** and bear responsibility for different situations	X						X	X								X						
	c3. Analyze and realize the codes of ethics and their importance.	X				X		X						X	X							X	X
Communication, Information Technology, Numerical	d1. **Communicate** Mathematical ideas, both orally and in writing		X			X	X	X	X							X			X	X	X		
	d2. Critically **interpret** numerical and graphical data			X													X	X					
	N. A.																						

	Course Offerings NQF Learning Domains and Learning Outcomes	MATH 322	MATH 342	MATH 351	MATH 352	MATH 353	MATH 381	MATH 423	MATH443	MATH 472	MATH 473	MATH 483	MATH 484	MATH 499	Math 411	Math344	Math482						
Knowledge	a1. **Define** and **write** fundamentals and concepts of mathematics**.**		X	X			X	X							X	X							
	a2**. Recall** and **reproduce** fundamentals and concepts of General sciences and Computer skills.					X										X							
	a3. Continue to **acquire** and **outline** mathematical and statistical knowledge and skills appropriate to professional activities					X				X	X	X	X	X			X						
Cognitive Skills	b1**. Construct** mathematical arguments and proofs and **apply** the underlying unifying structures of mathematics.			X	X		X	X	X	X	X			X	X		X						
	b2**. Develop** and **explain** critical thinking skills to solve problems that can be modeled mathematically	X			X			X				X	X										
Interpersonal Skills & Responsibility	c1**. Demonstrate** the work independently and within a team	X			X	X		X	X	X	X			X	X	X							
	c2**. Illustrate** and bear responsibility for different situations	X		X			X					X	X	X	X								
	c3. Analyze and realize the codes of ethics and their importance.				X							X	X	X	X	X							
Communication, Information Technology, Numerical	d1. **Communicate** Mathematical ideas, both orally and in writing	X	X			X	X		X	X	X			X	X		X						
	d2. Critically **interpret** numerical and graphical data			X	X	X								X									
	N. A.																						

5. Admission Requirements for the program

Attach handbook or bulletin description of admission requirements including any course or experience prerequisites.

- Pass the preparatory year

6. Attendance and Completion Requirements

Attach handbook or bulletin description of requirements for:
a. Attendance: : Students must attend 75% for each course of theoretical and practical lecture
b. Progression from year to year: The student can transmit to the next year either by succeeding in all subjects or with a minimum of 3 portable subjects
c. Program completion or graduation requirements: to get an acceptable minimum rate at graduation and receive a percentage of not less than 60% in each course.

Regulations for Student Assessment and Verification of Standards

What processes will be used for verifying standards of achievement (eg., verify grading samples of tests or assignments? Independent assessment by faculty from another institution) (Processes may vary for different courses or domains of learning.)

- The Ministry of Higher Education regulations for teaching and exams.
- Unified exams, group marking and group grading for multi-section courses.
- Internal assessment at the end of semester.
- Examine a sample of tasks or duties; of an independent assessment of the work by the College in another institution.
- Operations may vary with different courses or fields of study.

E. Student Administration and Support

1. Student Academic Counseling

- Meeting new students.
- Providing counseling to the students.
- A weekly office schedule is displayed on each faculty member's office and a total of 10 hours are specified for the students to provide them extra assistance and help in solving their academic problems.
- A follow-up committee exists in the department to look after the needs of the teaching assistant's scholarship holders and the meritorious students.
- Displaying the department handbook on the website of the department.

2. Student Appeals

Attach regulations for student appeals on academic matters, including processes for consideration of those appeals. - Ministry of higher education regulations, - University regulations of student's rights unit. (**http://mu.edu.sa/en/deanships/deanship-admission-and-registration**)

G. Learning Resources, Facilities and Equipment

1a. What process is to be followed by faculty in the program for planning and acquisition of text, reference and other resource material including electronic and web based resources? • Texts and references are chosen by specialized committees in the department and finally approved in the departmental meeting. • These texts and references are made available in an appropriate time by the book shop and the central library. • Through writing original text books or translation of some standard books by the faculty members. • Subscribing in the data bases to serve the research purposes. 1b. What processes are followed by faculty and teaching staff for planning and acquisition resources for library, Laboratories and classrooms. Faculty and staff members generally follow the procedures to acquire resources, which typically start by submitting their requests in appropriate forms through their department heads.
2. What processes are to be followed in the program for evaluating the adequacy of book, reference and other resource provision? • Reviewing the contents of these texts and references by the specialized committees in the department. • Chairman follows up. • Authored and translated texts are sent to referees.
3. What processes are followed by students for evaluating the adequacy of textbooks, reference and other resource provisions? Students have the opportunity to evaluate textbooks within student course experience survey as well as annual student focus group. Both activities are run by the college-level Academic Assessment Unit.
4. What processes are followed for textbook acquisition and approval? Textbooks are made available to students through the University Bookstore. Departments submit their revised textbook lists at the end of the academic year before summer to be made available by beginning of following year.

H. Faculty and other Teaching Staff

1. Appointments

Summarize the process of employment of new faculty to ensure that faculty are appropriately qualified and experienced for their teaching responsibilities.

- Generally, meritorious graduates are employed as teaching assistants in the department, and then they are provided with scholarships for MS and Ph.D. program. After the completion of the Ph.D. degree they are appointed as faculty members.
- Jobs for the academic staff are advertised nationally and internationally through all kinds of media (like internet, newspapers and magazines), a committee appointed by the department examine the applications and classifies them, those to be considered for a position and those who do not meet the academic standards of the department.

2. Participation in Program Planning, Monitoring and Review

a. Explain the process for consultation with and involvement of faculty in monitoring program quality, annual review and planning for improvement

- Participation of faculty members in various academic committees,
- Any recommendations by these committees are discussed in the departmental council.
- Formation of committees in various academic department affairs committees such as tables Committee, scientific research committee and quality control committee.
- Working on activating the recommendations of these committees through discussion within the department meetings and recommendations of these committees to the department meetings.
- Participating of department' faculty members in the program's periodic report, which is the outcome of the reports of their courses.
- Discussing faculty members in the results of surveys of students about the program.
- Participation of faculty members in the preparation of a plan to improve the program

b. Explain the process of the Advisory Committee (if applicable)

Council voluntary is chosen by Department, which consists of a group of eminent persons with expertise and efficiency of the community, offering advice and suggestions on topics determined by the department.

The functions of the Advisory Council of the program:

1. Providing technical support and advice academically and administratively to the program.
2. Suggesting mechanisms that contribute to achieving the vision and mission of the program.
3. Contributing to draw Strategic Plan.
4. Creating a true community partnership.

3. Professional Development

What arrangements are made for professional development of faculty for:

a. Improvement in skills in teaching?

a. Workshops conducted by the deanship of development and quality assurance
b. Seminar lectures and colloquium.

b. Other professional development including knowledge of research and developments in their field of teaching.

- Sabbatical leaves
- Conducting Seminar lectures and colloquium.
- Attending national and international scientific conferences.
- Distinguished professors in various topics are invited to visit the department.

4. Preparation of New Faculty

Describe the process used for orientation and/or induction of new, visiting or part time faculty to ensure full understanding of the program and the role of the course(s) they teach as components within it..

- Awareness workshop is conducted at the beginning of every academic year for new faculty members.
- Department handbook.
- Periodical meetings with heads of academic committees and course coordinators.
- Workshops conducted by the deanship of development and quality assurance

5. Part Time and Visiting Faculty and Teaching Staff

Provide a summary of Program/Department/ College/institution policy on appointment of part time and visiting faculty. (i.e. Approvals required, selection process, proportion of total faculty etc.)

For the part time and visiting faculty, the same policy and process are followed as in the case of full time faculty members, but there is only full time faculty member now.

I. Program Evaluation and Improvement Processes

1. Effectiveness of Teaching

a. What QA processes are used to evaluate and improve the strategies for developing learning outcomes in the different domains of learning?

- Workshops
- Faculty course-evaluation
- Students teacher- evaluation
- Students course-evaluation

b. What processes will be used for evaluating the skills of faculty in using the planned strategies

- Internal assessment.

- Student's teacher-evaluation.

2. Overall Program Evaluation

a. What strategies will be used in the program for obtaining assessments of the overall quality of the program and achievement of its intended learning outcomes: Students Experience Evaluations and Program Evaluations
(i) from current students and graduates of the program? Graduated and enrolled student's surveys.
(ii) from independent advisors and/or evaluator(s)?. - Consult specialists in the field of Mathematics outside the department and see their point of view on the process of educational department and the suitability of the curriculum with the developments occurring and advances in the field. - Questionnaires to governmental and private sector agencies to assess the performance of the employed students and their education.
(iii) from employers and/or other stakeholders. Employer's surveys.
b. What key performance indicators will be used to monitor and report annually on the quality of the program? Department annual report.
(Add additional KPIs if desired) c. What processes will be followed for reviewing these assessments and planning action to improve the program?

Complete the following two tables.

1. **Program KPI and Assessment Table**
2. **Program Action Plan Table**

NCAAA Standards	KPI Code	NCAAA KPI	Target Benchmark	Actual Benchmark	Internal Benchmark 1435	Internal Benchmark Physics Dept.1434	External Benchmark Qassim University	New Target Benchmark
Standard 1 Mission & Objectives	S1.1	1. Stakeholder evaluation ratings of the Mission Statement and Objectives	**85%**	**80%**	**80%**	**68%**	**N/A**	**90%**
Standard 2 Governance Administration	S2.1	2. Stakeholder evaluation of the Policy Handbook, including administrative flow chart and job responsibilities.	**75%**	**70%**	**70%**	**N/A**	**N/A**	**80%**
Standard 3 Management of Quality Assurance and Improvement	S3.1	3. Students overall evaluation on the quality of their learning experiences at the institution.	**85%**	**85.6%**	**78%**	**74%**	**100%**	**90%**
	S3.2	4. Proportion of courses in which student evaluations were conducted during the year.	**100%**	**100%**	**77.37%**	**66%**	**100%**	**85%**
	S3.3	5. Proportion of programs in which there was independent verification within the institution of standards of student achievement during the year.	**100%**	**100%**	**100%**	**100%**	**N/A**	**100%**
	S3.4	6. Proportion of programs in which there was independent verification of standards of student achievement by people external to the institution	**100%**	**100%**	**100%**	**100%**	**N/A**	**100%**

		during the year.						
Standard 4 Learning and Teaching	S4.1	7. Ratio of students to teaching staff.	**1:10**	**1:9**	**1 :11**	**1:5**	**1:16**	**1:10**
	S4.2	8. Students overall rating on the quality of their courses.	**75%**	**85%**	**60%**	**80%**	**yes**	**80%**
	S4.3	9. Proportion of teaching staff with verified doctoral qualifications.	**80%**	**86%**	**80%**	**96%**	**N/A**	**85%**
	S4.4	10. Percentage of students entering programs who successfully complete first year.	**75%**	**75%**	**73%**	**40%**	**75%**	**80%**
	S4.5	11. Proportion of students entering undergraduate programs who complete those programs in minimum time.	**20%**	**24%**	**17.3%**	**11%**	**27.7%**	**25%**
	S4.6	12. Proportion of students entering post graduate programs who complete those programs in specified time.	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
	S4.7	13. Proportion of graduates from undergraduate programs who within six months of graduation are: **(a)** employed **(b)** enrolled in further study **(c)** not seeking employment or further study	a)60% b)10% (c)10%	a) 59.38% b) 0% c) 40.62%	a) 58% b-)0% (c)50%	a)54% b)0% c)15%	65% N/A N/A	a-65% b-10% c)10%
Standard 5 Student Administration and Support	S5.1	14. Ratio of students to administrative staff	**1:9**	**1:9**	**1:14**		**1:17**	
	S5.2	15. Proportion of	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Services		total operating funds						
	S5.3	16. Student evaluation of academic and career counselling.	**75%**	**64**	**65%**	**84%**	**N/A**	**80%**
Standard 6 Learning Resources	S6.1	17. Stakeholder evaluation of library and media center.	**3.5**	**3.07**	**2.79**		**3.5**	
	S6.2	18. Number of web site publication and journal subscriptions as a proportion of the number of programs offered	**6**	**5.5**	**3.46**		**3.25**	
	S6.3	19. Stakeholder evaluation of the digital library.	**N/A**	**N/A**	**N/A**	**N/A**	**65%**	**20:1**
Standard 7 Facilities and Equipment	S7.1	20. Annual expenditure on IT budget.	**1666**	**1666**	**1173**		**670**	
	S7.2	21. Stakeholder evaluation of the IT services	**1:4**	**1:8**	**1:20**		**1:1**	
	S7.3	22. Stakeholder evaluation of a) Websites, b) e-learning services	**80%**	**68%**	**62%**			
Standard 8 Financial Planning and Management	S8.1	23. Total operating expenditure	**15746**	**9349**	**9788**		**15746**	
Standard 9 Faculty and Staff Employment Processes	S9.1	24. Proportion of teaching staff leaving the institution in the past year for reasons other than age retirement.	**5%**	**6%**	**5%**	**12%**	**N/A**	**0%**
	S9.2	25. Proportion of teaching staff participating in professional development activities during the past year.	**100%**	**95%**	**100%**	**65%**	**N/A**	**100%**

Standard 10 Research	S10.1	26. Number of refereed publications in the previous year per full time equivalent member of teaching staff.	**80**	**73**	**77**	**9**	**140**	**90**
	S10.2	27. Number of citations in refereed journals in the previous year per full time equivalent teaching staff.	**20**	**44**	**10**	**8**	**67%**	**20**
	S10.3	28. Proportion of full time member of teaching staff with at least one refereed publication during the previous year.	**80%**	**80%**	**50%**	**56%**	**12**	**100%**
	S10.4	29. Number of papers or reports presented at academic conferences during the past year per full time equivalent members of teaching staff.	***3***	**1**	**0**	**6**	**26**	***5***
	S10.5	30. Research income from external sources in the past year as a proportion of the number of full time teaching staff members.	**6**	**0**	**1**	**0 M SR**	**11**	**10**
	S10.6	31. Proportion of the total, annual operational budget dedicated to research.	**1%**	**0.22%**	**0.20%**		**1.5%**	
Standard 11 Community Service	S11.1	32. Proportion of full time teaching and other staff actively engaged in community service activities.	**85%**	**80%**	**80%**	**45%**	**yes**	**90%**

	S11.2	33. Number of community education programs provided as a proportion of the number of departments.	**6.5**	***5.63***	***5.6***
11 Standards and 33 KPIs Programs and Institutions are to complete 70% of the NCAAA KPIs.					

Program Action Plan Table

Directions: Based on you're "Analysis of KPIs and Benchmarks" provided in the above Program KPI and Assessment Table, list the recommendations identified below.

No.	Recommendations	Action point	Assessment Criteria	Responsible Person	Start Date	Completion Date
1	Enhance the level of students learning outcomes	Enhancement of the English background of the students.	The achievement level of the intended learning outcomes by direct using indirect assessment methods. The independent committee feedback. The verification of standard achievements. The comparison with the external and internal benchmarks. Different questionnaires.	- Head of department - Quality and accreditation committee		
		Following up the field experience activities according to the aimed outcomes.				
		Provide the necessary books to the library				
		Increase the number of training courses in the campus				
		Enhance the programming skills of the students				
2	Enhance the researches work and activities per faculty member	Improve the research work and activities	Amount of fund was obtained by faculties for researches and projects Number of graduates' projects participated in scientific conference with papers. The citations for researches were done by the faculties a	- Head of department - Scientific research unit		
		Establishment postgraduate studies				
		Provide research lab for researches				
		Motivate the faculties for the research work				

			year.			
3	Follow of the alumni and graduates	Establishment for alumni unit in the faculty with specific tasks to enhance both of alumni and graduates level as well.	Level of employers satisfaction □ Level of alumni and graduates satisfaction on the eservice provided by alumni unit □ Ratio of graduates were employed to the total graduates per year	Deanship of the faculty		
		Motivates the students with the importance of continues learning and communication with the program as well				
5	The verification from the standard achievement	Establishment of an external independent committee	□ The feedback from the independent committee □ The percentage of students	- Head of department - Quality and accreditation committee		
6	Improve personal, teaching, and research skills level of faculties	Establish plan for workshops and training courses for the different skills needed to enhance the level of the faculties	□ The level of students satisfaction on the teaching and the program as well. □ The number of researches per year for each faculty and for the program as whole □ Comparison with external benchmarks	Deanship of the faculty		

Attachments:

1. **Copies of regulations and other documents referred to in template preceded by a table of contents.**

2. **Course specifications for all courses including field experience specification if applicable.**

Authorized Signatures

Dean / Program Chair	Name	Title	Signature	Date
Program Dean or Chair of Board of Trustees Main Campus	Prof. Dr. Adel M. Zaki	Professor		**15/4/2015**