



# Program Specification

— (Bachelor)

Program: **Bachelor of Mathematics**

Program Code (as per Saudi university ranking): 050000

Qualification Level: **6th level (SAQF)**

Department: **Mathematics and statistics Department**

College: **Collage of science**

Institution: **Taif university**

Program Specification: New  updated\*

Last Review Date: **Sept., 2022**

\* [previous version of the Program Specification.](#)



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## A. Program Identification and General Information

### 1. Program's Main Location :

The Mathematics program is a full-time program at College of Science,  
Main Campus (Male), Hawiyah, Taif  
Main Campus (Female), Hawiyah, Taif

### 2. Branches Offering the Program (if any):

- Khurmah University Collage,
- Turabah University Collage,
- Ranyah University Collage.

### 3. Partnerships with other parties (if any) and the nature of each:

NA

### 4. Professions/jobs for which students are qualified

- Teaching,
- Employment in universities,
- Employment in business, industry, and government.

### 5. Relevant occupational/ Professional sectors:

Education, Research, teaching and statistical sectors.

### 6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
NA		

### 7. Exit Points/Awarded Degree (if any):

exit points/awarded degree	Credit hours
NA	

### 8. Total credit hours: (138)



## B. Mission, Objectives, and Program Learning Outcomes

### 1. Program Mission:

Provide the society with duly qualified graduates, well equipped with mathematical knowledge, skills and techniques, able to compete in the labor market (teaching, government and industry), and pursue postgraduate studies

### 2. Program Goals:

The mathematical program is designed to provide a contemporary mathematics courses in pure and applied mathematics, scientific computations, and applied statistics through evolving curriculum that will:

1. Prepare scientific graduates capable of accommodating the challenges to keep up with the great development of the Kingdom in accordance to 2030 vision.
2. Provide graduates with the skills and abilities to facilitate solving real world problems.
3. Emphasize the dynamic role of mathematics in science, society and all fields.
4. Enable graduates to acquire new skills as needed in their employment to serve, raise and develop their society.

Prepare graduates for advanced studies and Faculty posts in the universities of the Kingdom.

### 3. Program Learning Outcomes\*

#### Knowledge and Understanding

K1	Recognize fundamentals concepts of pure and applied mathematics in addition to applied statistics.
K2	Identify mathematical and statistical knowledge appropriate to professional activities

#### Skills

S1	Apply appropriate mathematical and statistical theories, models and tools in solving various problems.
S2	Employ mathematical knowledge to applications related to mathematical sciences.
S3	Demonstrate communications skills and mathematical techniques in different disciplines.
S4	Apply mathematical techniques in solving problems in other disciplines.
S5	Demonstrate the important of mathematical and statistical concepts, principles, theorems, formulas, computational techniques.

#### Values, Autonomy, and Responsibility

V1	Work effectively within groups and independently.
V2	Show the responsibility for their own learning and continuing personal and professional development.
V3	Recognize ethical, social issues and professional responsibilities related to computing and mathematics discipline.

\* Add a table for each track or exit Point (if any)





## C. Curriculum

### 1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	13	26	19%
	Elective			
College Requirements	Required	6	22	16%
	Elective			
Program Requirements	Required	24	78	56%
	Elective	3	9	7%
Capstone Course/Project		1	3	2%
Field Training/ Internship				
Residency year				
Others				
<b>Total</b>		<b>47</b>	<b>138</b>	<b>100%</b>

\* Add a separated table for each track (if any).

### 2. Program Courses

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	204101-4	General Chemistry1	Required		4(3+1)	Faculty
	202112-3	Introduction to Mathematics	Required		3	Faculty
	201104-4	General Biology	Required		4(3+1)	Faculty
	105115-2	<b>History of the Kingdom</b>	Required		2	University
	999801-2	<b>English for Academic Purposes 1</b>	Required		2	University
Level 2	2051204-3	Introduction to Biotechnology	Required		3(2+1)	Faculty
	2021204-3	Calculus I	Required	202112-3	4	Faculty
	2031204-4	General Physics (1)	Required		4(3+1)	Faculty
	990311-2	<b>University Study Skills</b>	Required		2	University
	990211-2	<b>Arabic Language Skills</b>	Required		2	University
	999802-2	<b>English for Academic Purposes 2</b>	Required		2	University
Level 3	2022103-3	Geometry	Required	202112-3	3	Math. Depart.
	2022104-4	Calculus II	Required	2021204-3	4	Math. Depart.
	2022106-3	Set Theory	Required	202112-3	3	Math. Depart.
	2022107-4	Probability and statistics	Required	2021204-3	4	Math. Depart.
	2004111-2	<b>Fundamentals of Islamic Culture</b>	Required		2	University





Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
	999803-2	English for Academic Purposes 3	Required		2	University
Level 4	2022204-3	Linear Algebra	Required	202112-3	3	Math. Depart.
	2022203-4	Mechanics	Required	2022104-4	4	Math. Depart.
	2022202-4	Calculus III	Required	2022104-4	4	Math. Depart.
	2022201-4	Ordinary Differential Equations	Required	2022104-4	4	Math. Depart.
	2004112-2	Islamic Culture(Morals and Values)	Required		2	University
	999804-2	English for Academic Purposes 4	Required		2	University
Level 5	2023106-3	Group Theory	Required	2022106-3	3	Math. Depart.
	2023103-4	Partial Differential Equations	Required	2022201-4	4	Math. Depart.
	2023102-3	Real Analysis1	Required	2022104-4	3	Math. Depart.
	2023101-3	Theory of Statistics	Required	2022107-4	3	Math. Depart.
	999807	English for Specific Purposes 1	Required		2	University
Level 6	2023202-4	Real Analysis2	Required	2023102-3	4	Math. Depart.
	2023203-3	Ring Theory	Required	2023106-3	3	Math. Depart.
	2023201-4	Mathematical Methods	Required	2023103-4	4	Math. Depart.
	2023204-3	Fluid Mechanics	Required	2022203-4	3	Math. Depart.
	2023205-2	Programming Languages	Required		2(1+1)	Math. Depart.
	2004313-2	Islamic Studies 3	Required		2	University
Level 7	2024101-3	General Topology	Required	2022106-3	3	Math. Depart.
	2024102-3	Complex Analysis	Required	2023202-4	3	Math. Depart.
	2024103-3	Numerical Analysis	Required	2022204-3	3	Math. Depart.
	2024114-3	Tensors	Elective	2022201-4 2022204-3	3	Math. Depart.
	2024110-3	Applications of Algebra	Elective	2022202-4	3	Math. Depart.
	2024111-3	Optimization Theory	Elective	2023203-3 2022204-3 2022201-4	3(2+1)	Math. Depart.
	2024112-3	Applied Stochastic Processes	Elective	2022107-4	3	Math. Depart.
	2024113-3	Biomathematics	Elective	2022107-4	3	Math. Depart.
	2024115-3	Functional Analysis	Elective	2022201-4 2023202-4	3	Math. Depart.
	2004414-2	Islamic Studies 4	Required		2	University
	999809-2	English Course(Elective1)	Required		2	University
	Level	2024201-3	Research Project	Required		3





Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
8	2024204-3	Differential Geometry	Required	2022103-3 2022202-4	3	Math. Depart.
	2024203-3	Mathematical Modeling	Required	2022204-3 2022201-4	3	Math. Depart.
	2024205-3	Financial Mathematics	Required	2023101-3	3	Math. Depart.
	2024203-2	Scientific Computations	Required	2022204-3 2022201-4	2(1+1)	Math. Depart.
	2024210-3	Discrete Mathematics	Elective	2022106-3 2022204-3	3	Math. Depart.
	2024211-3	Quantum Mechanics	Elective	2023103-4	3	Math. Depart.
	2024212-3	Advanced Biostatistics	Elective	2023101-3	3	Math. Depart.

\* Include additional levels (for three semesters option or if needed).

\*\* Add a table for the courses of each track (if any)

### 3. Course Specifications:

Insert hyperlink for all course specifications using NCAAA template (T-104)

[https://drive.google.com/drive/folders/1Kk2vX3AZ1nrenXq0MO1lc3KTHIDI9R?usp=drive\\_link](https://drive.google.com/drive/folders/1Kk2vX3AZ1nrenXq0MO1lc3KTHIDI9R?usp=drive_link)

### 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 and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
Gen Chemistry1										
Intro.To Math 202112-3										
Calculus I 2021204-4										
Gen Physics (1)										
Gen.Biology										
Intro. to Biotech.										
Geometry 2022103-3										





Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
Calculus II 2022104-4	I			I						I
Set Theory 2022106-3	I			P						I
Calculus III 2022202-4	P		P						P	
ODE 2022201-4		I					I			P
Linear Algebra 2022204-3	P		I		I					P
Stat. & Prob. 2022107-4		I		I				I	I	
Mechanics 2022203-4		I				I			I	
Group Theory 2023106-3		I		I				I		
DE 2023103-4		I					P	P		
Th. of Stat 2023101-3	P		P		I				I	
Real Anal. 1 2023102-3		I		P				P		P
Math Methods 2023201-4		P				I				P
Prog. Lang 2-2023205	P			P			P	P		P
Real Anal. 2 2023202-4	P					P		P		P
Ring Theory 2023203-3		P				P		P		P
Fluid Mech. 3-2023204		P		P				P		P
Numerical Anal. 3-2024103	M				M			P		P
Gen. Topology 3-2024101	M		P							P
Complex Anal 3-2024102	M		P				P			P
App of algebra 3-2024110	M			M				P		
Functional Anal 3-2024115		P	P						P	





Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values, Autonomy, and Responsibility		
	K1	K2	S1	S2	S3	S4	S5	V1	V2	V3
Optimization Th. 3-2024111	M				M	P		P		P
Scientific Com 2-2024203		M		M	M				M	
Math Modeling 3-2024202		M	M					M		M
Financial Math 3-ح2024205	M					M			M	
Quantum Mech. 3-2024211	M	M			M	M		M		M
App Stochastic Pr. 3-2024112		P		M	M				M	
Tensor 3-2024114		P		P		P			P	
Research Project 3-2024201		M	M		M		M	M	M	M
Diff geometry 3-2024204		M				M			M	M
Discrete Math 3-2024210	M		M	M				M		M
Adv. biostatistics 3-2024212		M				M	M	M		
Biomathematics 3-2024113	M	M			M	M				M

\* Add a separated table for each track (if any).

## 5. Teaching and learning strategies applied to achieve program learning outcomes.

Describe teaching and learning strategies, including curricular and extra-curricular activities, to achieve the program learning outcomes in all areas.

Here is a summary of the main teaching and learning strategies:

- Teaching large groups(lectures)  
Consider ways to make your lectures more impactful and engaging.

- Small group teaching

Explore the facilitator skills required and how to avoid potentially difficult scenarios when students are working in small groups.

- Demonstrating in practical classes

Explore the key learning aims of practical classes and how to get learners to effectively engage with them.



•Massive open online courses (MOOCs)

MOOCs offer an opportunity to refresh the way you think about curriculum design, and how you can bring MOOC concepts into mainstream teaching.

•Flipped classroom

Consider a 'flipped' approach by asking learners to watch video content before the class session, and devote in-class time to exercises, projects and discussions.

•Active learning

Explore teaching and learning methods that put the student in charge of their own learning through meaningful activities.

•Problem based learning

A student-centered approach, where students learn about a subject through understanding and solving problems.

•Work based learning

Providing students the opportunity to learn through real-life work experiences.

•Blended learning

Traditional classroom teaching combined with online learning and independent study.

•Student-led learning

Students work together to support each other learning.

## 6. Assessment Methods for program learning outcomes.

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

The program should devise a plan for assessing Program Learning Outcomes (all learning outcomes should be assessed at least twice in the bachelor program's cycle and once in other degrees).

There are two different assessment methods that Mathematics department have adopted: direct and indirect assessments for each course.

1. **Direct assessment:** This method obviously uses students' marks such as Final exam, Quizzes, Assignments, activities...etc.
  - 1.1. **Final exam:** This exam is scheduled at the end of each academic semester. Periods to undertake this type of examination are always closed periods with no courses. Students focus only on their exams.
  - 1.2. **Two Midterm exams:** these exams is scheduled at the mid of each academic semester, often after 8 teaching weeks., and the other after 12 weeks, Each instructor is free to choose the examination date and protectors for his course because in the most of times midterm exams are conducted in parallel with teaching duties. The Midterm is added to the list of exams to help students and to give them more chances in getting marks. If a student gets a bad mark in midterm, then he will have a chance to improve during the final exam. The structure of the midterm is similar to the final exams but often with fewer marks than the final one.
  - 1.3. **Quizzes:** This type of examination belongs to class activities. It measures the student ability to follow the course progress. Quizzes are short questions with limited marks. The instructor is free to do any number of quizzes and to choose at the end of semester the appropriate set of quizzes that could help students in increasing their marks.
  - 1.4. **Assignments:** This examination is a homework style. Students are given a list of questions to be answered at home and returned back to the course instructor before a known deadline. Assignments have also fewer marks than the final exams.
  - 1.5. **Final year project assessment:** The final year of the mathematics curriculum includes two Capstone course, which is the final year project. The evaluation of students during the course includes the following:



- 1.5.1. **Project report:** Students are evaluated according to the consistency of the delivered report.
- 1.5.2. **Project presentation:** Students are evaluated according to their proficiency convincing the examination committee.
- 1.5.3. **Project demonstration:** Students are evaluated according to the software that they developed.

**Indirect assessment:** This method is using students' opinions about the CLOs along the teaching semester. It measures how the CLOs have been mastered. For each CLO, the student would give his opinion either strongly agree (weight 5), agree (weight 4), neutral (weight 3), disagree (weight 2) or strongly disagree (weight 1).

## D. Student Admission and Support:

### 1. Student Admission Requirements

Students guidebook

[https://drive.google.com/drive/folders/1jevXPajvI9ZPp3XaNACs\\_9IE0nT7jhmO?usp=sharing](https://drive.google.com/drive/folders/1jevXPajvI9ZPp3XaNACs_9IE0nT7jhmO?usp=sharing)

Requirements for admission to Taif University is available at <https://webapps.tu.edu.sa/admission>, an online resource managed by the deanship of admission and registration, designed to help students and their families learn about TU, select a program and a campus, search for information and regulations, and apply for admission.

In addition, the following link contains the admission requirements for the College of sciences

<https://www.tu.edu.sa/En/Colleges/97/College-of-Science>

An applicant for admission to an undergraduate program at TU must satisfy a number of requirements, including:

- 1) The student must be a Saudi citizen at the time of application, or an immediate Saudi matrilineal descendent or a foreigner who has a valid residence at the time of applying to the university.
- 2) The student must possess a Saudi high school certificate, or its foreign equivalent.
- 3) The student must successfully pass a skills test. Such tests are administered by the National Assessment Center for Higher Education and carried out in a large number of centers across the Kingdom.
- 4) The deanship of Admission and Registration assigns a weighted average of the student's scores in high school, skills test and entrance test.
- 6) The number of students accepted is limited to the number of seats available as decided by the University Council and based on the capacity of resources of the College.

After finishing the TU preparatory year successfully, the admission office at TU decides to which college and program a student should join based on the student preference.

### 2. Guidance and Orientation Programs for New Students

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

The university organizes days for orientation to inform fresh students about university life and to be engaged in this new experience. The students informed by university systems, rules and how to access all university services.



#### **Orientation through the college:**

The college organizes a day for the students to make them familiar about the college organization, college departments, and programs. Also, the college provides information about activities and training.

#### **Orientation through the Program:**

Mainly the student's progress is monitored through advising. Students are required to meet with their academic advisor every regular semester at least once a semester for the purpose of course selection, graduation requirements, study plan, career development, and personal advising concerns that might occur. Taif University adopts a student registration tool, EREG (Electronic Registration System), which helps advisors to identify students' academic records, study plan, and performance in any stage of a semester. Advisor ensures that that all program requirements are met, alert students in advance to potential problems, help students balance course loads from semester-to-semester and monitor the students' progress to avoid last minute problems in meeting the program graduation requirements.

Mainly, at the beginning of each semester registration, the academic advisor looks for academic record of a student to see if the student has not completed all courses in the prior semester. The advisor recommends changes and makes the needed changes in the registration. This process allows the advisor to monitor students' progress as they move toward graduation.

**In order to graduate successfully, all students must complete 138 credit hours and are required to maintain a grade point average (GPA) of at least 1.0 out of 4.0. Those who fail to maintain this average are placed on scholastic probation and given two semesters to raise their GPA to 1.0. If the GPA of 1.0 is not attained within the three semesters of probation, the student may then be dismissed from the Faculty of Science. One last opportunity of a third semester to raise the GPA can be given to those who can attain the 1.0 GPA if they study at least 12 credit hours and score a B grade.**

1- The student is considered an academic discontinued if he withdraws from a semester or fails to register, irrespective of a valid reason. It is permissible for a student to be on discontinuing status for a maximum of two consecutive semesters, or a maximum of three non-consecutive semesters during his enrollment to TU. The student enrollment is terminated if he exceeds these limits.

2- Any student who loses his status as a student at TU due to the conditions mentioned in item (1) is entitled to appeal readmission based on the following conditions:

The student should satisfy all the admission conditions announced at readmission.

The student should keep the same university identification number and records he had prior to discontinuing his study.

The student's appeal should be approved by his/her college council.

**If the student discontinuity exceeds four semesters, he can apply for admission as a fresh one, without looking into his previous record, provided his discontinuity was not due to misconduct.**

### **3. Student Counseling Services**

(Academic, professional, psychological and social)

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).



Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of science. Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution. Personal, academic and career counseling of students are provided by several different offices and individuals, depending on the nature of the counseling sought. All the students entering any program of mathematics are assigned advisors by the college from the full-time faculty members of the college. In addition to any need based advising, there are set days for advising at the start and end of each semester. In these days the advisors are expected to be in their offices to guide students on a wide range of issues including but not limited to the selection of courses; e.g., if courses have no space, then the advisor finds and recommends alternate courses that the students may take to fulfil their degree requirements. Faculty members are available most of the time for consultation and advice to students during their office hours. The office hours for each course instructor are provided in the syllabus given to students and instructors should be available in their offices during the time allocated for office hours. In addition, the students may request an appointment with their advisors anytime during the semester by e-mails and visit them in their offices.

To handle problems where an advisor is unable to solve a problem faced by a student, the student is referred to the college counselor. The college counselor is a trained faculty member who provides professional guidance to the student. Based on the recommendation by the expert, the Vice Dean at the college takes appropriate action. The ranges of counseling services offered by [Students' Advisory Office](#) are listed in the Student Handbook, which is distributed each year to all new students during the orientation week. These include:

- Offering students religious and social guidance in accordance with Islamic principles.
- Supporting students with academic problems (students on probation or who have failed their courses) and helping them overcome these educational difficulties.
- Helping students address their personal, social and family problems.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

In the student-mentoring program, a faculty member is assigned to ten to fifteen students, as an academic advisor. Academic advisors meet with their assigned groups at least four times during the academic year. These meetings provide valuable opportunities for information exchange and suggestions as to how the student's educational experience could be improved.

Personal counseling for students is handled by the college Vice Dean. Students requiring in-depth personal counseling are referred to the main Students' Advisory office located at the Vice President of Academic Affairs and Development, where they can receive social, psychological and financial assistance. Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the college Vice Dean.

#### 4. Special Support

(Low achievers, disabled, gifted, and talented students).

- For the case there are special need students participated in the Program the infrastructure of the Institution is designed to provide them suitable facilities.
- The Math department prepare additional voluntary classes for low achievers students.

The Math department prepare scientific and educational visits to outstanding students to the prestigious research universities.



## E. Faculty and Administrative Staff:

### 1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor	4	3		4	3	7
Associate Professor	8	8		11	5	16
Assistant Professor	22	21		24	19	43
Lecturer	1	0		1	0	1
Teaching Assistant	1	1		0	2	2
Technicians and Laboratory Assistant	0	0		0	0	0
Administrative and Supportive Staff	1	1		1	1	2
Others (specify)						

## F. Learning Resources, Facilities, and Equipment:

### 1. Learning Resources

Learning resources required by the Program (textbooks, references, and e-learning resources and web-based resources, etc.)

**A. The processes followed by faculty and teaching staff for planning and acquisition of textbooks, 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 general university library as hard copy and electronically through a general national library system in Saudi Arabia.
- 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
- 

**B. The processes 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

The list of required resources and facilities are submitting their requests in appropriate forms through





their department heads.

## 2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

- The list of required text books is approved by college dean.
- The approved textbooks list and then submitted to the deanship of library to provide it according to the institution rules.
- The deanship followed the official processes for providing these books.
- Appropriate classrooms up to 50 students for teaching mathematics courses.
- All needed classrooms are available inside the main campus.
- Appropriate laboratory up to 30 students for computational mathematics courses.
- All students and staff members are covered by the medical insurance given by the governorate.
- The campus has a center of primary medical aids with a pharmacy.

## 3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

Each fiscal academic year, the CS Chair in collaboration with the Dean, writes and submits a budget proposal for supporting academic and research activities for the year ahead. This is based on the projection of needed improvements in the learning and research infrastructure.

Once the proposal is compiled, it is then submitted to the collage Dean for approval. The proposal is then sent for evaluation by VP of academic affairs.

### **Safety and risk management procedures:**

In each classroom, the instruction of use and safety procedures is published to the students:

- The instructor tells the students about the safety procedures of safety.
- The instruction of safety instructions are posted in each classroom in an access place for each student to see and access

Alarm bells, fire extinguishers and exits are available throughout the corridors of the college. There are signs and also notices of how to use next to each.

## G. Program Quality Assurance:

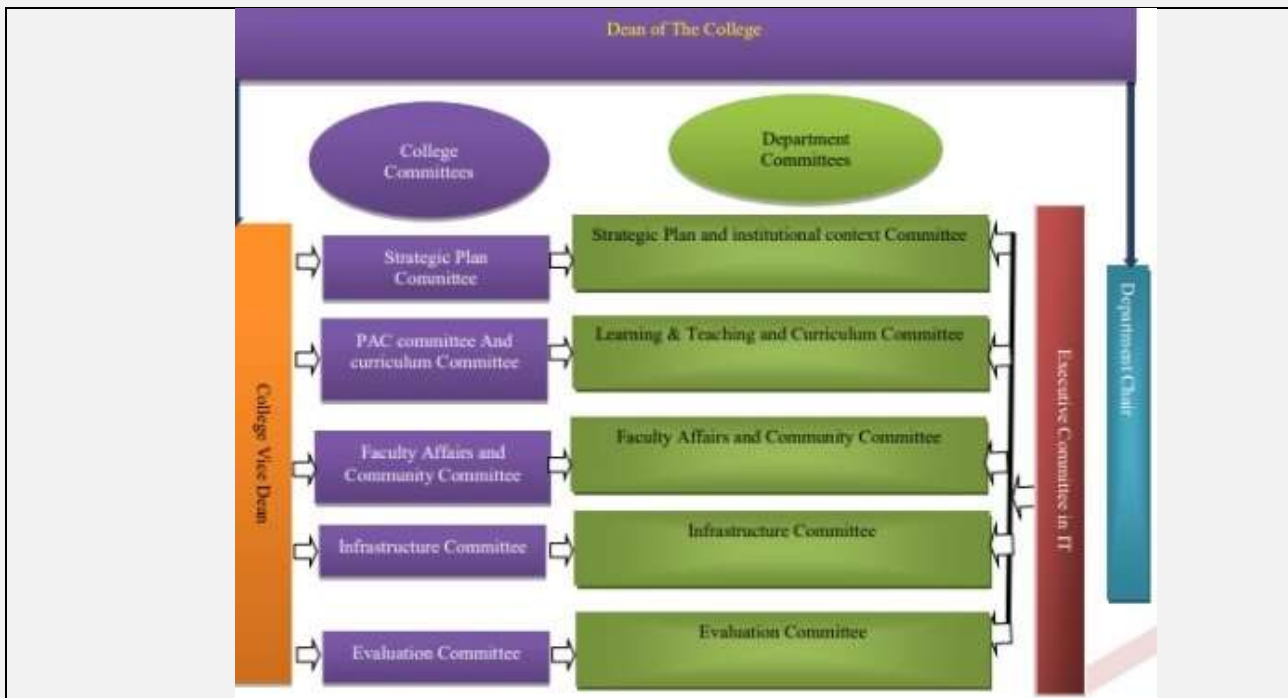
### 1. Program Quality Assurance System

Provide a link to quality assurance manual.

<https://drive.google.com/file/d/1AesTDqDVvnfg0v1Awi6YxS7gpZ12JVdb/view?usp=sharing>







- Development committee.
- Guidance committee.
- Study schedules committee.
- Examinations Committee.
- Scientific Research Committee.
- Learning Resources Committee.
- Activities Committee.
- Training and Graduation Research Committee.
- Graduate Studies Committee.
- Committee for the equivalence of courses.
- Assessment and control committee
- Quality control committee

## 2. Procedures to Monitor Quality of Courses Taught by other Departments

### 1. The Academic Programs Committee:

- Implement the periodic procedures to ensure the quality of the academic program, by collecting the information about the program using various assessment tools and analyzing these results annually to identify the strengths and weaknesses in order to improve performance, according to the following:
- Analyze the results of direct measurement of the CLOs and PLOs and prepare their own reports.
- Analyze surveys results and prepare report about its results.
- Prepare the program's annual report.
- Align PLOs with program graduate attributes and prepare the required reports.
- Study the latest surrounding conditions of the program and the developments of the labor market and the extent demand for program graduates.
- Prepare a comprehensive annual report including strengths and shortcomings points and





declare the proposals for improvement and development the program.

**2. Department Council:**

- Raise the reports of the academic programs committee in the department to the council of the department accordance to their own powers and the council take appropriate recommendations and approve the periodic reviewing reports and raise it to the Dean of the College.

**3. Dean of the College:**

- Submit the periodic reviewing reports of the program from Dean of the College to the Development and Accreditation Committee of the College to review reports and study recommendations as well as take actions to implement and raise that recommendations and reports to the College's Council for approve.

**4. College Council:**

Approve the program's reports and raise it to the University Deanship of Development.

**5. University Deanship of Development:**

- Follow-up the programs' periodic reviews with the concerned departments and provide the Academic Programs Committee with the required academic support.
- Review reports and recommendations related to academic programs which submitted from the development and accreditation committees coordinators of college.
- Based on the submitted reports, a report must be raised to the University's Agency on the need to modify, develop or cancel the program a report to the University Agency on the need for the program to modify, develop or cancel in report light raised.

**6. The University's Agency for Academic Affairs and Development**

- Submit recommendations to the University Council.

**7. University Council:**

- Raise a report on those academic programs which need to modify, develop or cancel to the University Council for appropriate decisions.

### 3. Procedures Used to Ensure the Consistency between Main Campus and Branches (including male and female sections).

- The department quality assurance committee includes one staff member from all branches as a coordinator for each branch.
- Each coordinator must write a report about his branch at the end of every semester as well as annual report.
- Follow-up the programs' periodic reviews with the concerned branches' coordinators and provide them with the required academic support.

Review reports and recommendations related to the program which submitted from branches' coordinators.

### 4. Assessment Plan for Program Learning Outcomes (PLOs),

- A committee was formatted for the purpose of setting and evaluating the learning outcomes of general mathematics program.
- Use the National Qualifications Framework for Higher Education in the Kingdom of Saudi





Arabia as a main source of information required.

- Study the learning outcomes of similar programs in different universities inside or outside Saudi Arabia.
- Taking the opinion of the advisory committee about the learning outcomes of the program.
- Taking the employers' opinion about the learning outcomes of the program.
- Align PLOs with program graduate attributes and prepare the required reports.
- Study the latest surrounding conditions of the program and the developments of the labor market and the extent demand for program graduates.
- Set the mapping matrix of program learning outcomes with courses.
- Design a plan to generate and collect data
- Analyze data
- Prepare a comprehensive annual report including strengths and shortcomings points and declare the proposals for improvement and development the program.

#### Mechanisms of the Development Processes

- For the case there is any course does not satisfy for PLOs the course specification and contents should be modified from specialized committee.
- The collected development plans related to all courses report should be reviewed and applied.
- Apply various teaching methods such as: cooperative teaching, self-study, brain storming methods, ...
- Use various assessment methods such as: projects, solving problems, oral exams, ...
- Just in case there is any one of the PLOs does not satisfied the program committee have to add one or more course to the program plan.

## 5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Staff members Students	Surveys	End of academic year
Effectiveness of teaching	Students	Surveys Exams' results	During semesters
Effectiveness of assessment	Staff members	Inspection of exams according to CLOs	End of semesters
Learning resources	Students Staff members	Surveys	End of semesters
Program KPIs	Program leaders	Results of KPIs	End of academic year

**Evaluation Areas/Aspects** (e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.)

**Evaluation Sources** (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others.)

**Evaluation Methods** (e.g., Surveys, interviews, visits, etc.)

**Evaluation Time** (e.g., beginning of semesters, end of the academic year, etc.)





## 6. Program KPIs\*

The period to achieve the target (\_\_\_\_) year(s).

Num.	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1.	KPI-P-01	Students' Evaluation of quality of learning experience in the program	3	Average rating of the overall quality of students' learning experiences on a five point scale in an annual survey of final year students	end of academic year
2.	KPI-P-02	Students' evaluation of the quality of their courses	3	Average rating of the overall student's evaluation of courses on a five point scale in an annual survey	end of semester
3.	KPI-P-03	Students' evaluation of the quality of academic supervision	3	Average students' overall rating of the quality of scientific supervision in an annual survey.	End of semesters
4.	KPI-P-04	Average time for students' graduation	8	Average time (in semesters) spent by students to graduate from the program.	end of academic year
5.	KPI-P-05	Rate of students dropping out of the program	15 %	Percentage of students who did not complete the program to the total number of students in the same cohort.	End of academic year
6.	KPI-P-06	Employers' evaluation of the program graduates' competency	3	Average of the overall rating of employers for the competency of the program graduates in an annual survey.	Beginning academic year
7.	KPI-P-07	Students' satisfaction with services provided	60%	Average of students' satisfaction rate with the various services provided by the program (food, transportation, sports facilities, academic advising, ...) on a fivepoint scale in an annual survey.	Beginning of semester
8.	KPI-P-8	Ratio of students to faculty members	1:10	The ratio of the total number of students to the total number of full-time and fulltime equivalent faculty members participating in the program	end of academic year
9.	KPI-P-9	Percentage of publication of faculty members	40%	Percentage of faculty members participating in the program with at least one research publication during the year to total	end of academic year





				faculty members in the program.	
10.	KPI-P-10	Rate of published research per faculty member	1 per year	The average number of refereed and/or published research per each faculty member participating in the program during the year. (Total number of refereed and/or published research to the total number of faculty members during the year)	end of academic year
11.	KPI-P-11	Citations rate in refereed journals per faculty member	100 per member	The average number of citations in refereed journals from published research (total number of citations in refereed journals from published research for faculty members to the total published research).	end of academic year
12.	KPI-P-12	Percentage of students' publication	5 %	Percentage of students who: a. published their research in refereed journals. b. presented papers at conferences. to the total number of students in the program during the year.	end of academic year
13.	KPI-P-13	Number of patents, innovative products, and awards of excellence	5	Number of: a. Patents and innovative products b. National and international excellence awards obtained annually by the students and staff of the program.	end of academic year
14.	TU-MATH-01	The number of initiatives programs offered to the local community per year.	10	The number of initiatives programs offered to the local community per year.	end of academic year
15.	TU-MATH-02	Percentage of faculty members of the program participating in community service activities.	%5	Percentage of faculty members of the program participating in community service activities.	end of academic year

\*including KPIs required by NCAAA





#### H. Specification Approval Data:

Council / Committee	Department Council
Reference No.	No(4)
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