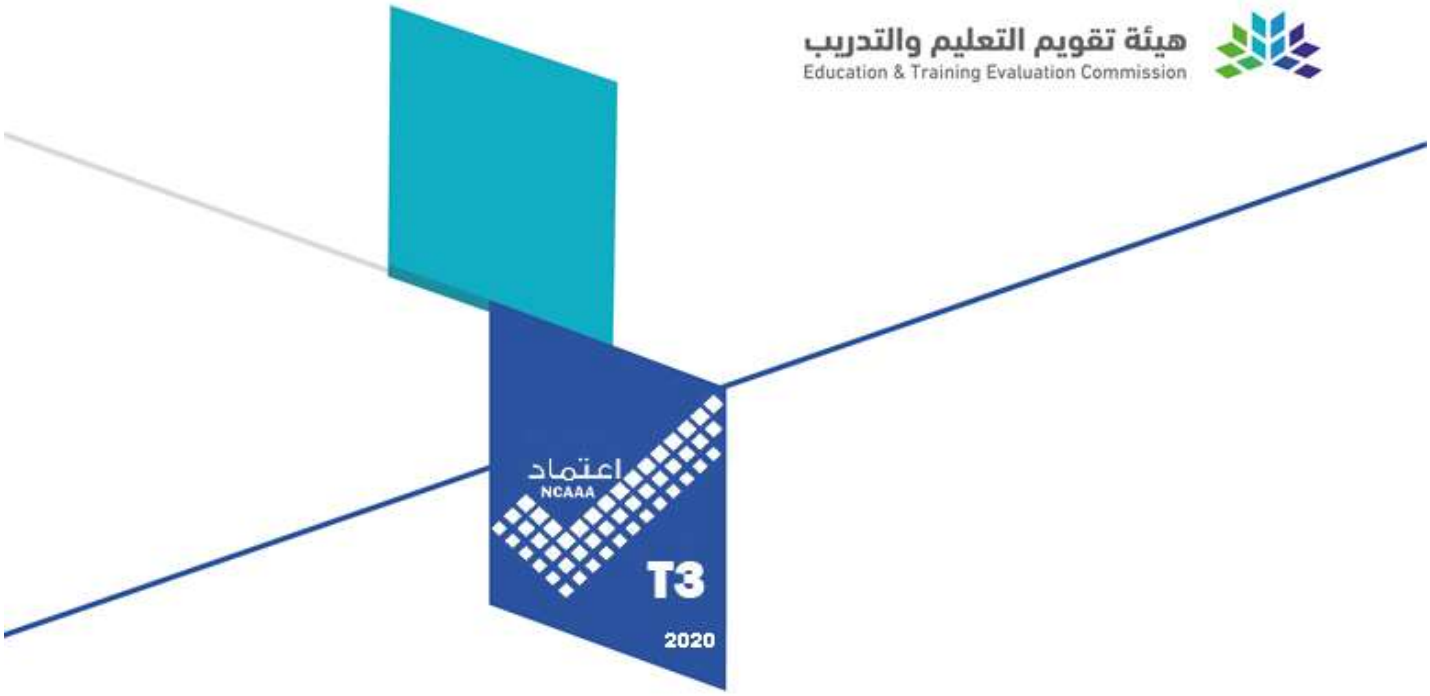
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Program Specification

Program Name: Mathematics
Qualification Level : 6
Department: Mathematics
College: Science
Institution: Jazan University

Content

A. Program Identification and General Information

1. Program Main Location: Main Campus

Main Campus
(Male & Female)
College of Science, Jazan University

2. Branches Offering the Program:

- University Collage in Al-Dayer
- University Collage **in Darb**

3. Reasons for Establishing the Program:
(Economic, social, cultural, and technological reasons, and national needs and development, etc.)

Social Reasons

1. A Mathematics Program is offered for local community stakeholders.
2. Provide society with scientific expertise in Mathematics.
3. Provide society with general skilled graduates to serve in occupations relevant to mathematics, economic, research.
4. Improve local youth population chances for good job opportunity in mathematics related establishments.

Economic Reasons

1. National policy to provide society with trained and skilled Saudi national manpower.
2. Improve local population opportunity for quality high education.
3. prepare graduate with Mathematics knowledge and skills to serve various sectors

4. Total Credit Hours for Completing the Program: (130)

5. Professional Occupations/Jobs:

- Public Teaching Sector (Teachers, Instructors).
- Economic Sector (Data analysts, Strategic planning, Administrations).
- Research and IT Sectors (Researchers, Data analysts).
- Faculties and Universities (Lecturers, Tutors, Employees).

6. Major Tracks/Pathways (if any)**: NA**

Major track/pathway	Credit hours (For each track)	Professional Occupations/Jobs (For each track)
1.		
2.		

7. Intermediate Exit Points/Awarded Degree (if any)**: NA**

Intermediate exit points/awarded degree	Credit hours
1.	
2.	

B. Mission, Goals, and Learning Outcomes

1. Program Mission:

To produce competent graduates in mathematics and motivate scientific research to enrich and serve the surrounding society in view of KSA vision-2030.

2. Program Goals:

1. To use a variety of models and methods in order to define, represent and solve mathematical problems.
2. To communicate mathematical reasoning symbolically, verbally and in writing.
3. Use critical thinking and problem solving skills to analyze and assess the validity of mathematical information.
4. Effectively use technology to communicate, collect, display and analyze information.
5. To provide with the skills required to succeed in a mathematics work or related field.
6. To perform effectively, individually or within a team.

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

1. Provision of scientific knowledge in the field of Mathematics.
2. Provision of highly trained and professionally excellent Saudi national man power.
3. Conducting Mathematical studies.
4. Encouraging scientific research and community service.
5. Relating applied studies to other discipline and society.
6. Establishing scientific links with national and international scientific bodies and institutes.

4. Graduate Attributes:

1. Deep discipline knowledge.
2. Critical thinking and problem solving.
3. Teamwork and communication skills.
4. Career and leadership readiness.
5. Self-awareness and emotional intelligence.

5.Program learning Outcomes*

Knowledge and Understanding	
K1	Distinguish mathematical concepts relevant to pure and applied mathematics.
K2	Identify background science, features and structure of mathematical problem.
K3	Explain notations and concepts required for the solution of Mathematical problem.
Skills	
S1	Apply theoretical, computational or practical aspect relevant to course content.
S2	Compute numerical quantities for various parameters to approximate the solution.
S3	Apply various mathematical rules, techniques and theorems in application.
S4	Solve mathematical problem using critical thinking.
Values	
V1	Cultivate a mathematical attitude and nurture the interest.
V2	Realize the importance of responsibilities through different modes of practice, competition and related activities.
V3	Inculcating values and ethics in thought, expression and deed.

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

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	**7**	**15**	**12%**
	Elective			
College Requirements	Required	**6**	**24**	**18%**
	Elective			
Program Requirements	Required	**31**	**91**	**70%**
	Elective			
Capstone Course/Project				
Field Experience/ Internship				
Others				
Total		**44**	**130**	**100%**

* Add a table for each track (if any)

2. Program Study Plan

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
Level 1	Islm 101	Islamic Culture 1	R	---	2	Institution
	Engl 105	English Language	R	---	6	College
	Bio 101	General Biology	R	---	4	College
	Math 101	General Mathematics	R	---	3	College
	Comp 101	Introduction Computer Sci.	R	---	3	Institution
Level 2	Islm 102	Islamic Culture 2	R	---	2	Institution
	Arab 101	Linguistic Skills	R	---	2	Institution
	Phys 101	General Physics	R	---	4	College
	Che 101	General Chemistry	R	---	4	College
	Engl 106	Scientific English	R	---	3	College
Level 3	Islm 103	Islamic Culture (3)	R		2	Institution
	Math 211	Calculus (1)	R	101 Math	3	Department
	Math 261	Static	R		3	Department
	Math 241	Analytic Geometry	R		3	Department
	Math 221	Basis of Mathematics	R	101 Math	3	Department
	Arab 102	Arabic Editing	R	---	2	Institution
Level 4	Islm 103	Islamic Culture (4)	R	---	2	Institution
	Stat 251	Mathematical statistics	R	101 Math	3	Department
	Math 222	Abstract algebra (1)	R	221 Math	3	Department
	Math 212	Calculus (2)	R	211 Math	3	Department
	Comp 271	Algorithmic and programming	R	101Comp	3	Department
Level 5	Math 313	Calculus (3)	R	212 Math	3	Department
	Math 323	Abstract algebra (2)	R	222 Math	3	Department
	Math 362	Dynamics	R	212 Math	3	Department
	Math 331	Differential Equations (1)	R	212 Math	3	Department
	Stat 352	Probability theory	R	251 Stat	3	Department
Level	Math 363	Analytical Mechanics	R	362 Math	3	Department
	Math 314	Complex Analysis	R	313 Math	3	Department
	Math 324	Linear Algebra	R	323 Math	3	Department

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
6	Math 315	Real Analysis(1)	R	212 Math	3	Department
	Math 316	Numerical Analysis (1)	R	212 Math	3	Department
	Math 332	Differential Equations (2)	R	331 Math	3	Department
Level 7	Math 442	Topology	R	315 Math	3	Department
	Math 425	Discrete Mathematic	R	221 Math	3	Department
	Math 434	Partial Differential Equations	R	332 Math	3	Department
	Stat 453	Applied statistics	R	251 Stat	3	Department
	Math 417	Real Analysis(2)	R	315 Math	2	Department
	Math 433	Mathematical Methods	R	313 Math	3	Department
Level 8	Math 443	Differential Geometry	R	331 Math	3	Department
	Math 472	Mathematical modeling	R	332 Math	3	Department
	Math 418	Functional Analysis	R	417 Math	2	Department
	Math 473	Operation research	R	324 Math	3	Department
	Math 464	Fluid Mechanics	R	434 Math	3	Department
	Math 419	Numerical Analysis (2)	R	434 Math	3	Department

* Include additional levels if needed
** Add a table for each track (if any)

3. Course Specifications

Insert hyperlink for all course specifications using NCAAA template

http://colleges.jazanu.edu.sa/sites/en/sci/math/Documents/Math-CS.pdf

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		
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3
101 Math	I	I	I	I	I	I	I	I	I	I
211 Math	I	I	I	I	I	I	I	I	I	I
212 Math	I	I	I	I	I	I	I	I	I	I
221 Math	I	I		I		I	I		I	I
222 Math	I	I	I	I	I	I	I	I	I	I
241 Math	I	I	I	I	I	I	I	I	I	I
251 Stat	I		I	I	I	I	I	I	I	I
261 Math	I	I	I	I	I	I	I	I	I	I
313 Math	P	P	P	P	P	P	P	P	P	P
314 Math	P	P	P	P	P	P	P	P	P	P
315 Math	P	P	P	P	P	P	P	P	P	P
316 Math	P	P	P	P	P	P	P	P	P	P
323 Math	P	P		P		P	P		P	P
324 Math	P	P		P		P	P		P	P
331 Math	P	P	P	P	P	P	P	P	P	P
332 Math	P	P	P	P	P	P	P	P	P	P
352 Stat	P	P	P	P	P		P	P	P	P
362 Math	P	P	P	P	P	P	P	P	P	P
363 Math	P	P	P	P	P	P	P	P	P	P

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding			Skills				Values		
	K1	K2	K3	S1	S2	S3	S4	V1	V2	V3
417 Math	M	M	M	M	M	M	M	M	M	M
418 Math	M	M	M	M	M	M	M	M	M	M
419 Math	M	M	M	M	M	M	M	M	M	M
425 Math	M	M	M	M	M	M	M	M	M	M
433 Math	M	M	M	M	M	M	M	M	M	M
434 Math	M	M	M	M	M	M	M	M	M	M
442 Math	M	M	M	M	M	M	M	M	M	M
443 Math	M	M	M	M	M	M	M	M	M	M
453 Stat	M		M	M	M		M	M	M	M
464 Math	M	M	M	M	M	M	M	M	M	M
472 Math	M	M	M	M	M	M	M	M	M	M
473 Math	M	M	M	M	M	M	M	M	M	M

* Add a table for each track (if any)

5. Teaching and learning strategies to achieve program learning outcomes

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

Code	Program Learning Outcomes	Assessment Methods
Knowledge and Understanding		
K1	Distinguish mathematical concepts relevant to pure and applied mathematics.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
K2	Identify background science, features and structure of mathematical problem.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
K3	Explain notations and concepts required for the solution of Mathematical problem.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
Skills		
S1	Apply theoretical, computational or practical aspect relevant to course Content.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
S2	Compute numerical quantities for various parameters to approximate the solution.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
S3	Apply various mathematical rules, techniques and theorems in Application.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
S4	Solve mathematical problem using critical thinking.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
Values		

V1	Cultivate a mathematical attitude and nurture the interest.	Assignments
V2	Realize the importance of responsibilities through different modes of practice, competition and related activities.	Assignments
V3	Inculcating values and ethics in thought, expression and deed.	Assignments

6. Assessment Methods for program learning outcomes.

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

The tools used will be direct and indirect methods of measurements;

Direct measures:

A set of common rubrics will be used for both grading and assessment at the program level. In some cases, student overall grades in courses may be used through impeded questions in Quiz, Midterm exam or Final Exam. The intent by using rubrics to help students understand departmental expectation, to gauge student progress over time, and to provide a basis for faculty discussions concerning possible areas for program improvement. In most cases these rubric lines will be incorporated into a course specific rubric that contains additional elements specific to the course learning outcomes and expectations. The student grades are used in knowledge domains.

Indirect Measures

- On a periodic basis the department will solicit feedback on graduate skills from alumni and their employers using either surveys or focus groups. These mechanisms may allow the department to reevaluate the target student outcomes to match changing needs in the Mathematics community. The department expects that all numerical responses on this survey will be a 3 or higher and that written responses will be generally positive, yet constructive in improving department programs.
- The department will ask for feedback from graduating students using surveys or focus groups to evaluate their perception of whether the degree has adequately prepared them for their chosen career. This may include job placement and graduate/professional school admission rates. The department expects that all numerical responses on this survey will be a 3 or higher and that written responses will be generally positive, yet constructive in improving department programs.
- The department will periodically hold a focus group with existing Mathematics majors and Mathematics club members. This will provide an opportunity to identify emerging problems quickly before they show up in tracked data. The department expects that student responses will be generally positive, yet constructive in improving department programs.
- The department will periodically collect feedback from faculty and instructors on their perceptions of student strengths and weaknesses.

D. Student Admission and Support:

1. Student Admission Requirements

https://www.jazanu.edu.sa/adm/media/sites/59/2020/07/%D8%AF%D9%84%D9%8A%D9%84_%D8%A7%D9%84%D9%82%D8%A8%D9%88%D9%841442.pdf
and
https://edugate.jazanu.edu.sa/jazan/ui/guest/application_online/index/typeApplicationOnlineIndex.faces
and
The-Student-Guide-English.pdf (jazanu.edu.sa)

2. Guidance and Orientation Programs for New Students

The orientation program for new students is held annually for new enrolled students. There are

- College Orientation: Dean Meeting with new enrolled students.
- Department Orientation: Head of Department Meeting with new enrolled students and staff.
- Student Counseling Orientation: Student Counseling Committee Meeting with students

The Orientation programs are designed to help students get acquainted with the following:

- Vision, mission and objectives of the department, college and university.
- University and college regulations and code of conduct.
- Tips on leading a successful college life in line with their potential career goals.
- Department and college facilities and places.
- plan of study review course
- methods of evaluation
- Wellness, self-care
- faculty expectations
- certification and licensure information

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

- Student Academic Counselling Committee is in charge of student counselling.
- Each Faculty is assigned a group of students for counselling.
- Faculty will be available for student counselling at specific office hours during on daily basis.
- Faculty should make a file for each student in his counselling group where student contact information, a copy of student timetable, a copy of student academic record are kept and updated every semester.

4. Special Support
(low achievers, disabled, gifted and talented)

Low achievers:

- Teachers assign those students more assignments, help them during office hours and give them opportunities as and when needed.
- If any students remain with low GPA on request and appeal they are given an opportunity to study a subject from or out of the study plan.

Disable:

- The department, along with the college administrators, tries to create the relevant conditions for the study of students and applicants with special needs without reducing the requirements for their study performance and in accordance with the principles of equal treatment.

- During an exam, an applicant with special needs shall be, at his request and based on the evaluation of his special needs, determined a form of the exam and method of taking it, taking regard of his special needs.

Gifted and talented:

- There is a Talented Students Committee in the department who are working with the students providing them opportunities in participating in competitions, workshops, department activities, career orientations etc.

E. Teaching and Administrative Staff

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	4	None	None	3	1	5
Associate Professors	11	None	None	7	4	11
Assistant Professors	41	None	None	27	14	41
Lecturers	31	None	None	12	19	31
Teaching Assistants	12	None	None	4	8	12
Technicians and Laboratory Assistants						
Administrative and Supportive Staff	4	None	None	1	3	4
Others (specify)						

2. Professional Development

2.1 Orientation of New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

Orientation Week

- Dean's meeting with new teaching staff.
- Head of Department meeting with new teaching staff.
- College Quality Assurance Unit orientation program for new teaching staff including interactive lectures and training workshops on quality of teaching and learning strategies.

2.2 Professional Development for Teaching Staff

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

- Program QA Committee is linked to Deanship for Academic Development and is actively involved in its training programs.
- Faculty/Staff are required to annually attend/present proof of attendance of College QA Unit activities (Seminars/Workshops).

- Faculty/Staff are required to annually attend/present proof of attendance of Deanship of Academic Development activities (Seminars/Workshops).
- Faculty/Staff are required to attend/present proof of attendance of Annual Quality Forum organized by the Vice President for Quality and Academic Development Office.
- Faculty/Staff are required to attend/present proof of attendance (when available) NCAAA QA activities.
- Faculty/Staff are encouraged/acknowledged/rewarded for attending/presenting proof of attendance of Conferences/Seminars/Symposia/Workshops in their particular specialties.

F. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Mechanism for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

- A copy of learning resources for each course is kept in the relevant Course File in the Program QA Unit.
- A list of learning resources is kept in the Program QA Unit.
- The list of learning resources is annually updated by teaching Faculty and gets approval by Program Board.
- Student assessment of quality of library services carried out by College QA Unit.
- The updated list of learning resources is then raised to College of Science Deanship and hence to Deanship for Library Affairs.

2. Facilities and Equipment

(Library, laboratories, medical facilities, classrooms, etc.).

- Selected teaching Faculty members are selected every year to attend the Jazan University Book fair to recommend acquisition of new titles.
- Selected senior faculty are in charge of annual evaluation of the adequacy of learning resources.

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

College of science is committed to providing a safe and healthy campus environment. Among its highest priorities are the health and safety of all faculty, staff, and students, the visiting public, and members of the neighboring community in order to implement environmental and occupational health and safety programs and to ensure compliance with all relevant governmental laws and regulations. A variety of health care services to students, faculty, staff and community members.

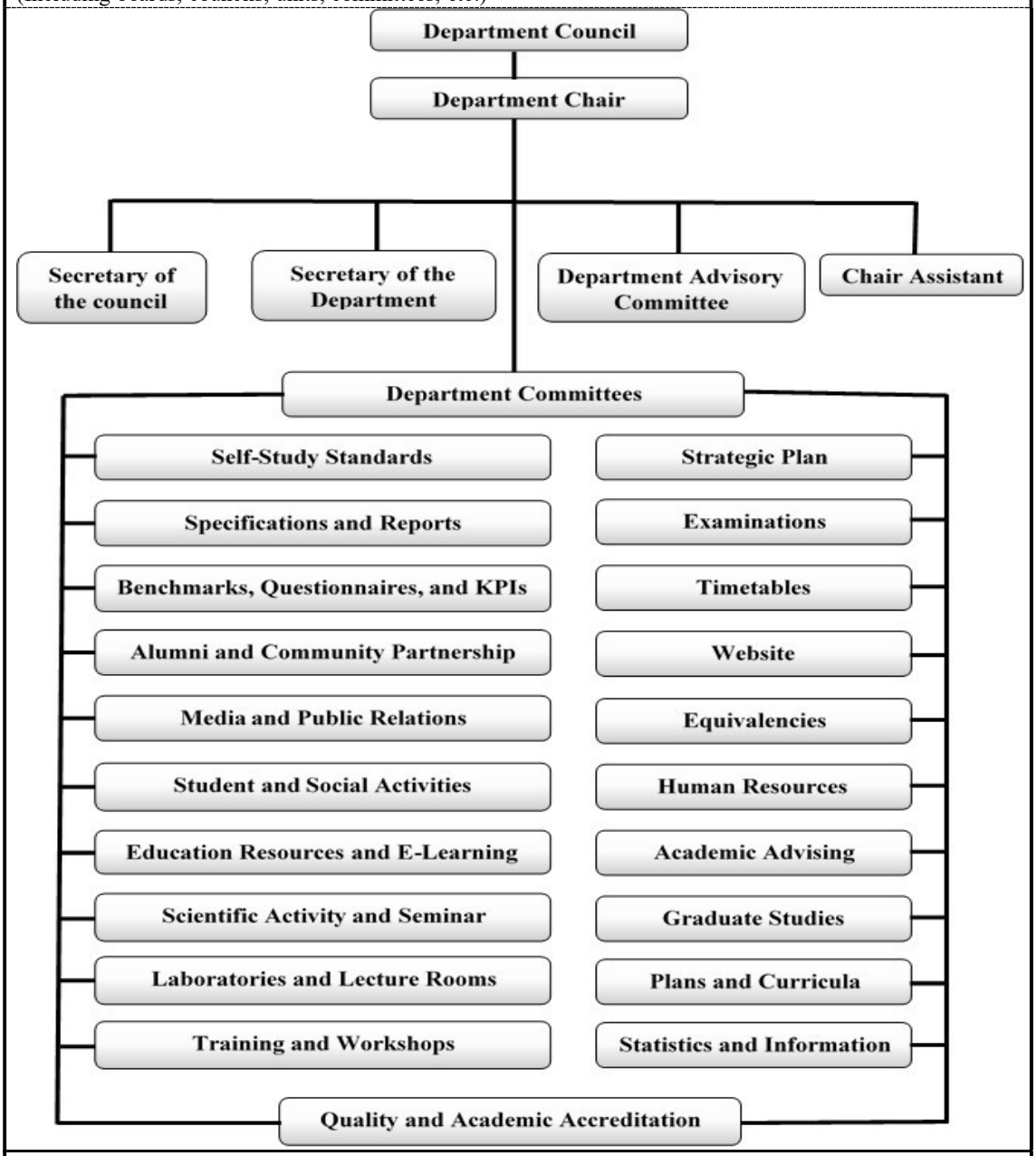
- The Campus Health Clinic is located inside the main campus and a small room over the medical support inside the College of Science building.
- Smoking is prohibited in any University facility and on any University grounds.
- First aids boxes are located in almost all rooms.
- The purpose of the Chemical Safety Program is to ensure the proper handling of hazardous chemicals, as well as hazardous waste management and disposal. Exposure to hazardous chemicals is kept at a minimum by using the appropriate Personal Protective Equipment and by performing experiments in a certified chemical fume hood.
- Fire prevention guidelines are listed in all places
- Emergency Exit doors in all parts with sufficient Signboards in all places.
- Safety and safety instructions are announced at the laboratories and the places where students gather.

G. Program Management and Regulations

1. Program Management

1.1 Program Structure

(Including boards, councils, units, committees, etc.)



1.2 Stakeholders Involvement

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

Students, Faculty Members, Alumni, and Employers are the main stakeholders.

Students:

- Involved in evaluation of program as well as courses
- Participate in internal quality assurance via decision-making and quality management processes as equal partners.

Faculty members:

- Involved in planning for curriculum, program development, teaching and learning methodologies.
- Involved in evaluation of students, courses as well as program.
- Participate in internal quality assurance via decision-making and quality management processes as well as professional development processes.

Employer and Alumni:

- Involved in evaluation of program as well as courses
- Participate in internal quality assurance in terms of representation as well as participation in study program development.
- Participated formally in program advisory committees and contributed to program accreditation
- Periodic reviews of Mathematics Program and awards should include external panel members, feedback from employers, labor market representatives and other relevant organization

2. Program Regulations

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

1- https://www.jazanu.edu.sa/adm/media/sites/59/2020/04/Rules.pdf
2- https://www.jazanu.edu.sa/stu/media/sites/62/2020/04/%D9%84%D8%A7%D8%A6%D8%AD%D8%A9-%D8%A7%D9%84%D8%AD%D9%82%D9%88%D9%82_compressed.pdf
3- https://www.jazanu.edu.sa/stu/media/sites/62/2020/04/%D9%84%D8%A7%D8%A6%D8%AD%D8%A9-%D8%A7%D9%84%D9%85%D9%86%D8%AD_compressed-1.pdf
4- https://www.jazanu.edu.sa/dev/media/sites/61/2020/05/The-Student-Guide-English.pdf

H. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

https://www.jazanu.edu.sa/dev/media/sites/61/2020/05/QMS-Manual.pdf

2. Program Quality Monitoring Procedures

- All faculty members submit course reports at the end of each semester
- Feedback from Student Assessment of Quality of course evaluation questionnaires.
- Feedback from final Student Assessment of Quality of student experience evaluation questionnaires.
- Feedback from Graduate Assessment of Quality of program evaluation questionnaires.
- 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.
- Feedback from employer assessment of graduate quality and attributes.

3. Arrangements to Monitor Quality of Courses Taught by other Departments.

Program QA Committee is continuously communicate with the department that are responsible for the courses offered such as Computer Science Department in terms of course specifications, ourse reports, and their suggestion for improvement plans for Mathematics Program Students.

4. Arrangements Used to Ensure the Consistency between Main Campus and Branches (including male and female sections)

In sections for male and female students the leaders of both sections participate in institutional governance and be fully involved in strategic planning, decision making, and senior administration with effective and continuing communication between sections. Strategic planning ensures equitable distribution of resources and facilities to meet the requirements of program delivery, research, and associated services in each section and quality evaluations consider performance at each section as well as for the institution as a whole.

- Male and female sections are represented in the membership of relevant committees and councils and participate fully in decision making through processes that are consistent with bylaws and regulations of the Higher Council of Education.
- Main campus and branches are represented in the membership of relevant quality assurance and accreditation committees and councils and participate fully in decision making through processes that are consistent with bylaws and regulations of the Higher Council of Education.
- An effective communication between members from each section on these committees and councils was established, and individuals in the different sections carrying out related activities were fully involved in planning, evaluations and decision making.
- Planning processes and mechanisms for performance evaluation lead to comparable standards in each section while taking account of differing needs.
- Quality indicators, evaluations and reports show results for both sections and branches indicating similarities and differences as well as overall performance.

5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).

NA

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

The Assessment and Evaluation Process:

The Mathematics program uses different tools and processes to assess and evaluate the extent to which its PLOs are being attained. These processes are used to gather the data, which is necessary for the assessments. Evaluation, in the form of interpreting the data, is then carried out in order to determine how well the outcomes are being attained. The results of both the assessment and evaluation processes are finally utilized for the continuous improvement of the program. The steps used for the assessment, evaluation and feedback to the continuous improvement of the program follow the following three steps:

1. Assessment tools of the PLOs (i.e., collecting data) can be direct or indirect. Direct assessment of PLOs usually relies on the course work, whereas indirect assessments of PLOs are usually obtained by using surveys. This step includes designing forms of surveys and appropriate questions for the specific and applicable data.
2. The collected data is analyzed and compared to a pre-set performance indicator, which constitutes the evaluation processes.
3. Checking the degree to which the data evaluation results meet the pre-set targets will be the force for the continuous improvement processes.

Course mapping to PLOs:

To set the stage for the assessment process, the material covered in each course, together with its expected course learning outcomes (CLOs), are used to identify the certain number of program learning outcomes that are most probably be covered by the course. It is important to mention here that each of the course CLOs should be associated with one of the chosen PLOs. Thus, the PLO with a single CLO implies that this CLO statement may be identical with that of the PLO. We should also emphasize that the capstone courses are exceptions to the above-mentioned mapping scheme and can have as many PLOs as needed; in fact, we mapped the capstone courses to practically all PLOs.

To this end, each course has identified some specific number of measurable Course Learning Outcomes (CLOs) and these CLOs are mapped to the chosen different PLOs. This process of course-PLO mapping is carried out for each Department course.

Program Learning Outcomes:

In order to assess and evaluate the extent to which the PLOs are being attained, the Mathematics Program uses various processes. These processes are defined to keep data gathering efficient and effective, and the evaluation pertinent to the process of continuous improvement. To achieve these goals, two types of assessments, direct and indirect are performed. The indirect assessment is performed using surveys while the direct assessment results are obtained from student coursework-based evaluations.

In its planning for the present and for future expanded assessment processes, the program faculty have suggested and adopted the ambitious assessment process of Figure-1.

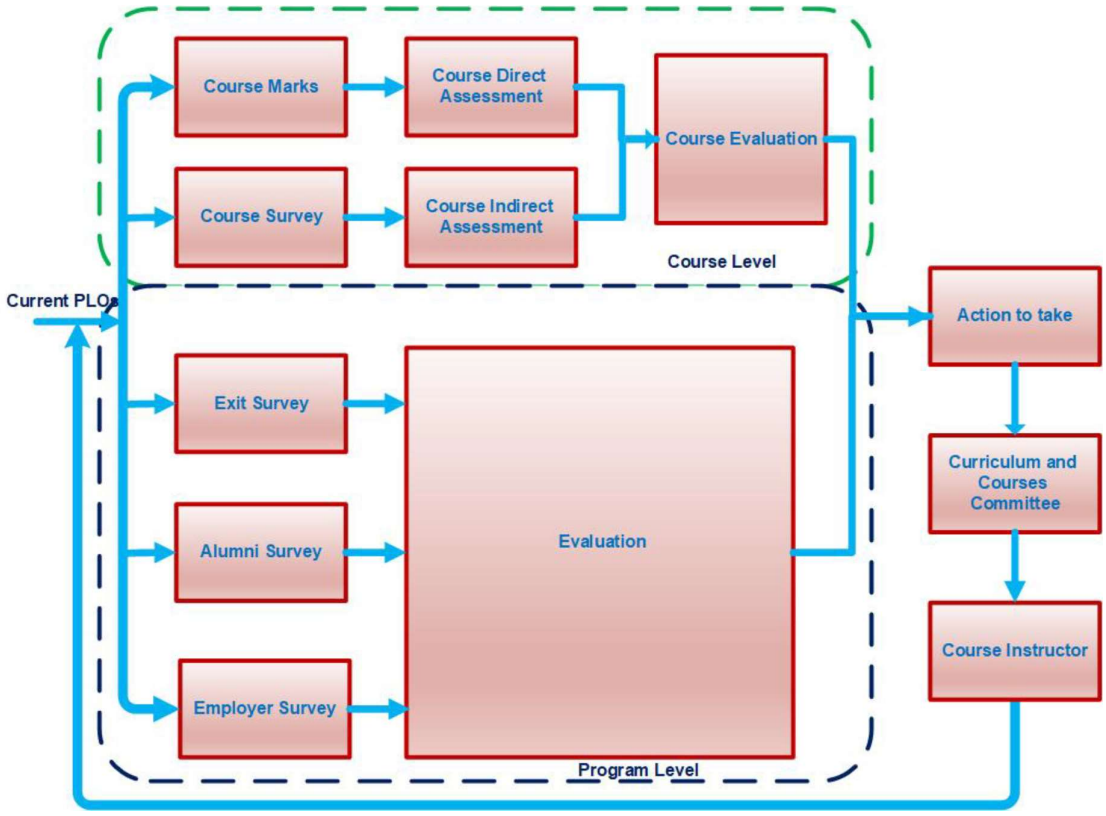


Figure-1 Program Learning Outcomes Assessment

Table-1describes how the Program Learning Outcomes are assessed. It contains the method of assessment, data sources with which these assessment processes are carried out, and how the data is collected.

Table-1 Program Learning Outcomes Assessment Tools

Method of Assessment	Data Sources	How collected	Performed by	Collected By	Evaluated By
Direct Assessment Method	Course Assessment Report based on student marks	Electronic Copy	Faculty Members	Quality and Accreditation Committee	Quality and Accreditation Committee
Indirect Assessment Method	Course survey Evaluation		Students	Quality and Accreditation Committee	
	Program Evaluation survey				
	Alumni Survey		Alumni		
	Employer Survey		Employer		

Direct Assessment:

The direct assessment of the outcomes usually relies on the coursework and uses a variety of tools that include combinations of final exam, midterm tests, quizzes, homework, laboratory works, assignments, practical, projects, presentations, etc. The assessment tools do however vary from course to course.

Indirect Assessment:

For our indirect assessment, different surveys are conducted.

Course evaluation survey is conducted towards the end of a course. In this regard, formal written surveys targeting the program learning outcomes are solicited from students at the end of the Mathematics courses.

Program Evaluation survey is filled in by the graduates at the end of their graduation semester. The graduate survey contains questions that directly target every one of the Program Learning Outcomes.

An **Alumni survey and employer survey** is filled in by the alumni's and employers respectively that directly target every one of the Program Learning Outcomes.

7. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Leadership	Peer Review	Internal Peer Review	End of year
Teaching & Learning	Student Feedback	Student Questionnaire	End of semester
Assessment	Peer Review	Internal Marking Revision	End of semester
Learning Resources	Benchmarking	National Benchmarking	End of year

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Scientific Research	Impact	• No. of ISI publications / faculty / year No. of Citations / faculty / year	End of year
Partnerships	Effectiveness	Annual Report	End of year
Graduates	Feedback	Alumni Questionnaire	End of year
External Stakeholders	Feedback	Stakeholder Questionnaire	End of year
Community Service	Impact	Annual Report	End of year

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)

8. Program KPIs*

The period to achieve the target (.....) year.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	P-01	Percentage of achieved target level of KPI of program operational plan	80%	Questionnaire / QA Committee	Every Year
2	P-02	Students' Evaluation of quality of learning in program	4	Questionnaire / QA Committee	Every Semester
3	P-03	Students' evaluation of the quality of their courses	5	Questionnaire / QA Committee	Every Semester
4	P-04	Completion Rate	4	Students Affairs / Program Report	Every Semester
5	P-05	First-Year Students Retention Rate	4.5	Students Affairs / Program Report	Every Semester
6	P-06	Students' performance in the professional and/or national examinations (if any)	4	Graduates Affairs Committee	Every Semester
7	P-07	Proportion of graduates who employed or enrolled in further study	75%	Graduates Affairs Committee	Every Semester
8	P-08	Average Number of students in the class	25	Timetables Committee / Students Affairs Committee	Every Semester

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
9	P-09	Employers' evaluation of the program graduates proficiency	4	Questionnaire / Graduates Affairs Committee	Every Year
10	P-10	Student satisfaction with the services	4	Questionnaire	Every Year
11	P-11	Ratio of students to teaching staff	15:1	Timetables Committee	Every Semester
12	P-12	Percentage of teaching staff distribution	75%	Timetables Committee	Every Year
13	P-13	Proportion of teaching staff leaving the program	5%	Program Leader	Every Year
14	P-14	Percentage of publication of faculty members	75%	Scientific Research Committee	Every Year
15	P-15	Average research per faculty member	1:1	Scientific Research Committee	Every Year
16	P-16	Average of citations in refereed journals	10:1	Scientific Research Committee	Every Year
17	P-17	Satisfaction of beneficiaries with learning resources	4	Questionnaire	Every Year

* including KPIs required by NCAAA

I. Specification Approval Data

Council / Committee	**BOARD OF MATHEMATICS DEPARTMENT**
Reference No.	**12TH MEETING OF THE BOARD OF MATHEMATICS DEPARTMENT 1441-1442**
Date	**14/6/1442 AH.; 27/1/2021 A. D.**