2025

Quality Management of MS in Physics program

MASTER OF SCIENCE IN PHYSICS

College of Science

Jazan University

https://jazanu.edu.sa/en

Quality Management System

The Quality Management System (QMS) provides a framework to assess and measure an institution's commitments and achievements as outlined in its mission, vision, and strategic goals. Its primary aim is to evaluate stakeholder satisfaction and foster confidence through established policies and procedures. The Master of Science in Physics program is committed to delivering quality education and meeting its mission and vision.

This manual outlines the policies and procedures that ensure quality assurance and management activities are aligned with NCAAA standards. It clearly defines responsibilities, scope, and areas of activity. In accordance with NCAAA regulations, these policies extend to all organizational units, committees, and personnel responsible for implementing and maintaining the system.

It is important to note that NCAAA stipulations are statutory, meaning they are legal requirements that set the minimum standards for quality in academic assessment leading to accreditation. As the highest regulatory authority for academic assessment and accreditation in the Kingdom of Saudi Arabia, NCAAA's standards form the baseline for compliance. Institutions and higher education programs are obligated to use these as the minimum statutory benchmarks for developing their internal quality assurance (IQA) systems within the framework of external quality assurance (EQA). NCAAA standards serve as the foundational regulatory benchmarks that all higher education institutions must adhere to, with additional requirements from other stakeholders or accreditation bodies acting as complements.

1. About the Program

1.1 Establishment

The Master of Science in Physics program was established at Jazan University as per the decree of the council of higher education, No 9, dated 10/5/1440H (16/1/2019). Jazan University has been fully accredited for the period from October 2018 to September 2025 by the National Commission for Academic Accreditation and Assessment (NCAAA), and then the Physical Sciences Department program has been fully accredited for the period from June 23, 2023 to September 30, 2028 by the Accreditation Agency for Study Programmes in Engineering, Informatics, Natural Sciences and Mathematics (ASIIN).

1.2 Vision

The Physics program at Jazan University aspires to achieve excellence in physics education, scientific research and community service to become a leading Physics Program locally and globally.

1.3 Mission

The Master of Science in Physics program seeks to achieve innovation and excellence in physics education and scientific research to prepare highly skilled graduates who meet the needs of development and society.

1.4 Goals

Provide high-quality advanced education in diverse fields of physics combined with training to extend the frontiers of physics and encourage innovation.
Implement high-quality research in interdisciplinary areas of physics, and enhance expertise in theoretical, computational and experimental physics.
Contribute to the workforce and serving the community.

1.5 Objectives

Prepare graduate students with knowledge and critical thinking skills applicable to theoretical, computational, and experimental physics research.
Direct graduation theses to be based on innovative ideas and publishing research and patents.
Prepare graduate students with communication skills and values through oral presentations, scientific writing ethics, teamwork and lifelong learning.
Provide physicists who are able to contribute to the workforce and serve society.

The Master of Science in Physics program follows the values of Jazan University.

1.6 Values	
Citizenship	Pride in the national identity and a sense of social responsibility
Belonging	A feeling of commitment and initiative towards the goals and objectives of the University
Responsibility	Adherence to ethical standards and work values
Excellence	The application of standard practices and offering quality services
Capacity Building	Investing in human capital
Teamwork	Promoting cooperation and imbibing the team spirit

2. Program General Information

PROGRAM GENERAL INFORMATION

University	Jazan University
College	College of Science
Department	Physical Sciences
Name of the Program Degree	Master of Science in Physics
Duration of Study	2 Years (4 Semesters)
Total Credit Hours	33 Credit Hours
Total ECTS	120 ECTS
Website of Jazan University	https://jazanu.edu.sa/en
Website of College of Science	https://jazanu.edu.sa/en/colleges/sci
Website of Physical Sciences Department	https://jazanu.edu.sa/en/colleges/sci/psci/msc-phys
Master Program Started on	2020-2021
Expected No. intake	10
Types of Fees	Tution fees/ free scholarships
Contact Person	Head of Department: Dr. Hussain Gebreal Athlawi
Email	hathlawi@jazanu.edu.sa
Telephone	+966 569540133
Postal Address	Department of Physical Sciences, College of Science, Jazan University, Kingdom of Saudi Arabia. PO Box 2097, Zip Code:45142
ASIIN Coordinator	Prof. Ahlam EL-Barbary

3. Employment Outlook

3.1 Graduates skills
3.2 Consistency of Program and JU Graduates attributes

3. Employment Outlook

Graduates of the Master of Science in Physics at Jazan University obtain a degree with multiple career paths.

- Graduates can participate in research and development in the private or public industrial sector: water stations, geology organization, electric power stations and petroleum factories.
- Graduates can teach physics at high school (public and private).
- Graduates can work at Research centers and Universities.
- Graduates can work at Laboratories.
- Graduates can complete their higher education in physics, PhD.

Graduates of Jazan University have a set of characters (JUGA) and features as shown below:

JUGA1: Research and knowledge inquisitiveness and practical application of knowledge:

- Graduates show a comprehensive and extensive knowledge of specialization and an understanding of the link of specialization with other areas through the practical application of knowledge and continuous self-learning.

JULGA2:The ability to solve problems and make decisions:

- Identifying problems by critical analytical thinking and solutions using creative thinking, and is able to evaluate opinions and make informed decisions.

JULGA3: Commitment to values, ethics and responsibility

- Committed to professional ethics, Islamic and community values, social responsibility through good citizenship and community service as well as responsibility, appreciation of cultural diversity and respect for other cultures.

JUGA4: Effective communication

- Graduates can communicate effectively and in writing.

JUGA5: Digital communication

- The graduate is able to access, evaluate and use information effectively and efficiently and creatively in sustainable learning, scientific research, and effective communication.

JUGA6: Leadership and teamwork

- Graduates can lead teams and guide them towards achieving the desired goals, and work to develop entrepreneurial ideas and projects in self-determination and in cooperation with others.

JUGA7: Professional Scientific ethics

- Graduates are aware of all scientific ethics.

3.1 Graduates skills

Characterization of Master of Science (MSc) in Physics program

Category	Employment Skills	Description
Specialist	Deep knowledge of areas of specialization	Comprehensive knowledge and understanding of their field of specialization, and the ability to apply their knowledge in practical practice.
Critical/ innovator	Critical and creative thinking	The ability to solve problems effectively and can apply critical and creative thinking to come up with innovative responses to future challenges.
Active	Effective Teamwork and Communication	The ability to communicate effectively with others.
Leader	Leadership and Responsibility	Ability to take leadership roles in their chosen occupations or careers and communities.
Honest	Integrity and professional ethics	Cultural and Ethical Competence: Committed to integrity and professional ethics in various fields.
Researcher	Scientific research	Follow the scientific method in research work, conduct original and distinguished scientific research in the field of specialization, participate in research projects in the field of specialization and produce scientific research and publish it in accredited journals.
Self-taught	Digital and lifelong learning	The ability to access and use information in lifelong learning, scientific research and communication.

3.2 Consistency of Program and JU Graduates attributes

Master of Science in Physics graduates have employability skills that align with Jazan University graduate attributes and job skills needs. The following Table shows the characterization of graduates of Master of Science in Physics program.

Consistency of Master of Science (MSc) in Physics program and JU graduates attributes (JUGA)

MScPH	JUGA1	JUGA2	JUGA3	JUGA4	JUGA5	JUGA6	JUGA7
Specialist	✓						
Critical/ innovator		✓					
Active				✓			
Leader						✓	
Honest			✓				✓
Researcher							✓
Self-taught					✓		

4. Learning Outcomes

4.1 Program Learning Outcomes (PLO's).
4.2 JU Learning Outcomes (JULO's).
4.3 Consistency of PLO's with the University Learning Outcomes.
4.4 Courses and Program Learning Outcomes Mapping.
4.5 Assessments Plan of LO's.

4.1 PROGRAM LEARNING OUTCOMES (PLO'S)

The Program learning outcomes of Master of Science in Physics

Code	Program Learning Outcomes	Teaching Strategies
Knowledge and Understanding "upon completion of the program, students will be able to" :		
K1	Describe theories, techniques, practices, materials, and terminology relevant to physics topics	Lectures, Tutorials, and Interactive discussions.
K2	Discuss physical phenomena and their recent developments in various research fields.	Lectures, Tutorials, and Interactive discussions.
Skills "upon completion of the program, students will be able to" :		
S1	Apply theories and creative solutions to solve physical problems	Lectures, Problems, and Interactive discussions
S2	Build critical thinking skills to provide reasonable justification analysis.	Lectures, Problems, and Interactive discussions
S3	Demonstrate abilities in qualitative and quantitative methods for analyzing and reporting data using computational and IT tools.	Lectures, Problems, Presentation, Written essay, Interactive discussions, and Seminars.
S4	Develop sufficient skills to conduct advanced experimental work and high-level graduate research (theoretical and experimental).	Hands -on practice, Expository discovery and Interactive discussions
Values, Autonomy and Responsibility "upon completion of the program, students will be able to" :		
V1	Adhere to the ethical principles and safety requirements.	Hands -on practice, Expository discovery and Interactive discussions
V2	Demonstrate the ability of independent lifelong learning.	Expository and Discovery, and Interactive discussions.
V3	Show effective individual responsibility and teamwork.	Expository and Discovery, and Interactive discussions.

4.2 JU LEARNING OUTCOMES (JULO'S)

JULO1	Analyze and explain theories, concepts, principles, skills and practices in different disciplines (knowledge and understanding).
JULO2	Apply the skills and ethics of scientific research, innovation and creativity efficiently (skills).
JULO3	Apply knowledge by accomplishing practical skills brilliantly (practical skills).
JULO4	Apply independent and critical thinking innovatively to solve complex problems (skills).
JULO5	Demonstrate leadership qualities and skills needed to communicate effectively with others orally and written in a sound language (skills and values).
JULO6	Apply sustainable learning skills in all scientific and community aspects on environmental, economic and social issues (values).
JULO7	Promote the concept of community responsibility towards scientific and life issues (values).
JULO8	Commit to professional and ethical behaviors and show team spirit (values).

4.3 Consistency of PLO's with the JU Learning Outcomes

The consistency of PLOs for Master of Science (MSc) in Physics program with Jazan University (JU) learning outcomes

MSc in Physics	JU LO2	JU LO2	JU LO3	JU LO4	JU LO5	JU LO6	JU LO7	JU LO8
PLO1.1	✓							
PLO1.2	✓							
PLO2.1				✓				
PLO2.2				✓				
PLO2.3		✓	✓					
PLO2.4			✓					
PLO3.1					✓			✓
PLO3.2						✓	✓	
PLO3.3								✓

4.4 COURSES AND PROGRAM LEARNING OUTCOMES MAPPING

The course and program learning outcome mapping

Course Code & NO.		Program Learning Outcomes								
		Knowledge and Understanding		Skills				Values, Autonomy, and Responsibility		
		K1	K2	S1	S2	S3	S4	V1	V2	V3
Mathematical Physics	PHYS600	I	I	I		I				I
Classical Mechanics	PHYS601	I	I	I					I	I
Classical Electrodynamics	PHYS602	P		P	P	P				P
Quantum Mechanics	PHYS603	P		P		P				P
Statistical Mechanics	PHYS604	M	M	M					M	M
Computational Physics	PHYS610		M	M	M	M				M
Physics Laboratory	PHYS611	M	M			M	M	M		M
Atomic and Molecular physics	PHYS620	M	M	M	M				M	
Quantum Optics	PHYS621	M	M	M					M	
Plasma Physics	PHYS622	M	M	M					M	M
Solid State Physics	PHYS640	M	M	M						M
Materials Science	PHYS641	M	M	M	M	M				M

Continue with Table 6:		Program Learning Outcomes								
Course Code & NO.		Knowledge and understanding		Skills				Values, Autonomy, and Responsibility		
		K1	K2	S1	S2	S3	S4	V1	V2	V3
Magnetism and Superconductivity	PHYS642	M	M	M					M	M
Nuclear Structure and Spectroscopy	PHYS650	M	M	M					M	
Radiation Physics	PHYS651	M	M	M					M	
Quantum Field Theory	PHYS660	M		M						M
Particle Physics	PHYS661	M	M	M		M			M	
Special Topics in Physics	PHYS665	M	M	M	M	M				M
Research Seminar	PHYS695	M	M	M	M	M	M	M	M	
Thesis	PHYS699	M	M	M	M	M	M	M	M	M

(I = Introduced P = Practiced M = Mastered))

4.5 T HE WEIGHT PERCENTAGE (%) OF LEARNING DOMAINS

An arrangement for Weight Percentage (%) of Learning domains for Master of Science in Physics Courses has been discussed and set according to the following table.

Table 7: The course and program learning outcome mapping

Courses Names & Codes		Domains%		
		K&U	Skills	Values
Mathematical Physics	PHYS600	20%	70%	10%
Classical Mechanics	PHYS601	20%	70%	10%
Classical Electrodynamics	PHYS602	20%	70%	10%
Quantum Mechanics	PHYS603	20%	70%	10%
Statistical Mechanics	PHYS604	20%	70%	10%
Computational Physics	PHYS610	15%	60%	25%
Physics Laboratory	PHYS611	15%	60%	25%
Atomic and Molecular physics	PHYS620	15%	75%	10%
Quantum Optics	PHYS621	15%	75%	10%
Plasma Physics	PHYS622	15%	75%	10%
Solid State Physics	PHYS640	15%	75%	10%
Materials Science	PHYS641	15%	75%	10%
Magnetism and Superconductivity	PHYS642	15%	75%	10%
Nuclear Structure and Spectroscopy	PHYS650	15%	75%	10%
Radiation Physics	PHYS651	15%	75%	10%
Quantum Field Theory	PHYS660	15%	75%	10%
Particle Physics	PHYS661	15%	75%	10%
Special Topics in Physics	PHYS665	15%	75%	10%
Research Seminar	PHYS695	15%	45%	40%
Thesis	PHYS699	15%	45%	40%

Assessments Plan of LO's

PROCESS

NCAAA regulations and forms apply to all documents. Internally, the Physical Sciences Department periodically reviews its entire curriculum, re-evaluates textbooks, monitors national curriculum trends, and studies the distribution of course grades each semester. Additionally, faculty participate in and review examinations, regularly collect student evaluations of teaching, assess learning outcomes for each course, and report the scores of CLOs each semester from various tests. The Physical Sciences Department also periodically collects annual feedback from alumni and employers.

DATA COLLECTION

In collecting data, a balance was pursued between cost (time, money, etc.) and usefulness of the data while not placing unreasonable demands on faculty, University resources, students, and alumni.

CURRENT PRACTICES

The Plan-Do-Check-Act (PDCA) loop is used in all the process starting from planning tol implementation.

Plan-Do-Check-Act (PDCA) loop

1.PLAN

1a. PLOs Assessment Plan using CLOs:
Data is collected and evaluated each year to assess learning outcomes. An improvement plan report is then prepared including a list of minor and major changes based on the results of the learning outcomes assessment and their associated learning outcomes. Minor changes can be implemented during the assessment cycle while major changes can be implemented by the end of the assessment cycle timeline.

1**b.** The CLOs are identified with the participation of all instructors and consideration of the main topics and concepts of the courses. The CLOs are mapped to the PLOs to ensure that the CLOs contribute to the PLOs at different levels in the program.

1c. Course Assessment Plan: Each instructor develops a course-based assessment plan (as described in the course specifications) that describes the assessment methods that will be used to assess the CLOs in order to accurately measure and evaluate learning outcomes. In other words, course-level assessment methods (tests, assignments, homework, etc.) are designed to assess and evaluate the extent to which each of CLO has been achieved.

2.DO

2a. Teaching Strategies Plan: In the course specifications, appropriate teaching strategies and other instructional practices (lecture, group discussion, etc.) are identified and will be followed during teaching. These teaching strategies are aligned with the CLOs and support the needs of the students. The CLOs assessment methods, and teaching strategies are an integrated learning and teaching process.

2**b. Design of Course Assessment Methods:** To accurately measure the level of achievement of the CLOs, all questions are designed according to the CLOs. In other words, instructors align the questions of all course assessment methods with the CLOs. Moreover, the difficulty levels of the questions should be highly consistent with the level of learning in the CLOs. For example, introductory information is mostly related to the knowledge and understanding levels while application, analysis, and design are linked to skills levels.

2c. MSc in Physics Strategy for Selecting Assessment Methods

Use multiple methods to assess each learning outcome, including direct and indirect measures, qualitative and quantitative measures, and passive and active assessment methods. Choose what to observe or measure. Prioritize objectives/outcomes, be flexible, use what has already been accomplished, and allocate time for assessment

2**d. Procedures for Selecting Assessment Methods for Each Learning Outcome:**

The assessment method should be consistent with the outcome to be assessed. Criteria are defined in terms of scores out of 5, percentages, averages, or other quantitative measures.

2**e. Conducting Assessment and Collecting Data:**

Student performance is then collected through exams, assignments, projects, theses, etc. at the course level. More specifically, their performance on questions related to the CLOs should be observed and analyzed in each course.

3. CHECK AND ANALYZE

3a. Evaluation Results:

Instructors evaluate students' performance according to CLOs. In other words, student grade reports are prepared for each CLO. By the end of the semester, the instructors prepare the CLOs. An Excel template has been prepared to make the process clear and straightforward and includes data analysis for all types of tests and activities to obtain grades and student achievements in all CLOs with graphical representation.

3**b.** The quality unit should be responsible for analyzing and interpreting the data. It is important to summarize the results in a way that can be reviewed and actions needed to improve the program are identified. Based on the context, objectives are set as shown in Table 8. Furthermore, the corresponding PLOs achievements are calculated at the course level using the CLOs to PLOs mapping and the CLOs achievement report.

3c. Finally, the achievements of the program's PLOs are calculated using students' performances in CLOs. Master of Science in Physics is planning to implement the following methods:

- The method of factoring contribution of all courses (weight % to course based on the level of learning domain and level of the program), it is the most accurate and consistent with % of learning domains in the program.
- The method of selective contribution from Thesis and some required and elective courses.
- The PLO is achieved if the average of the overall achievements score is >=3.75 and the % of students who exceeded 75% is 80% and above.

Table 8: The key to the schemes used

Schemes	Scored	% of student's achievement (the % of students who get or exceeded 75%)
Exemplary(E)	5	>=90
Satisfactory (S)	4	from 85 and < 90
Adequate(A)	3	from 80 and < 85
Meet the criteria	2	from 75 and < 80
Unsatisfactory (U)	1	< 75

4. ACT

4a. Designing Improvements:

Using the results of the CLOs and PLOs evaluation, it is now important to design a set of improvements to improve the quality of the program. The improvements are designed by the end of each year. More specifically, each instructor uses the results of the CLOs and PLOs evaluation to prepare a course report that contains a list of actions to improve the curriculum, syllabus, course delivery, and instructor performance. In addition, the Program Curriculum Committee (PCC) meets with the Program Quality Committee (PQC) with faculty and agrees on a list of minor and major improvements. Minor actions can be implemented at any time during the evaluation cycle and may affect any aspect of the program (teaching strategies, examinations, guidelines, policies, etc.). However, major improvements are reserved for later discussion and approval. Cumulative major improvements are discussed with other stakeholders for final approval by the end of the evaluation cycle. The key components of our improvement plan using the CLOs evaluation data are the actions to be taken, the person or unit responsible, the timeline (start date and deadline), and the type of actions (major or minor).

4**b. Implementing Improvements**

The department head then distributes the improvement plan designed in the previous point to the responsible persons for further action. The Quality Committee monitors the implementation of the improvement plan.

The CLOs assessment method has many advantages such as direct assessment of PLOs, faculty involvement in the assessment process, ease of implementation, and continuous improvement process based on the semester. However, there are still some limitations related to the validity of the data and the accuracy of the assessment results because students' grades in the courses may be affected by the diversity of the instructors. To enhance the assessment of PLOs using CLOs, a set of procedures was implemented:

- The main procedures are based on cumulative results over an assessment cycle rather than single semester data.
- Ensure that the learning perspective is oriented towards learning outcomes.
- Appoint a faculty member for each course as a course coordinator in case the same course is taught by more than one faculty member as in the case of research seminar course, and special topics in physics. The main role of the course coordinator is to ensure that the same curriculum (content, topics, and classification) is followed for instructors at the same course. The course coordinator also reviews the assessment methods at the course level to ensure that they are appropriate for the CLOs.
- Regularly review the alignment of CLOs with PLOs to ensure better improvement.

- Follow a unified grading policy and system to ensure that students' knowledge and skills are represented by the grade.
- Improve the mechanism for distributing courses to teachers to ensure that the right teachers with good experience are teaching the right courses.
- At this stage of the continuous improvement cycle, planned changes should be implemented.

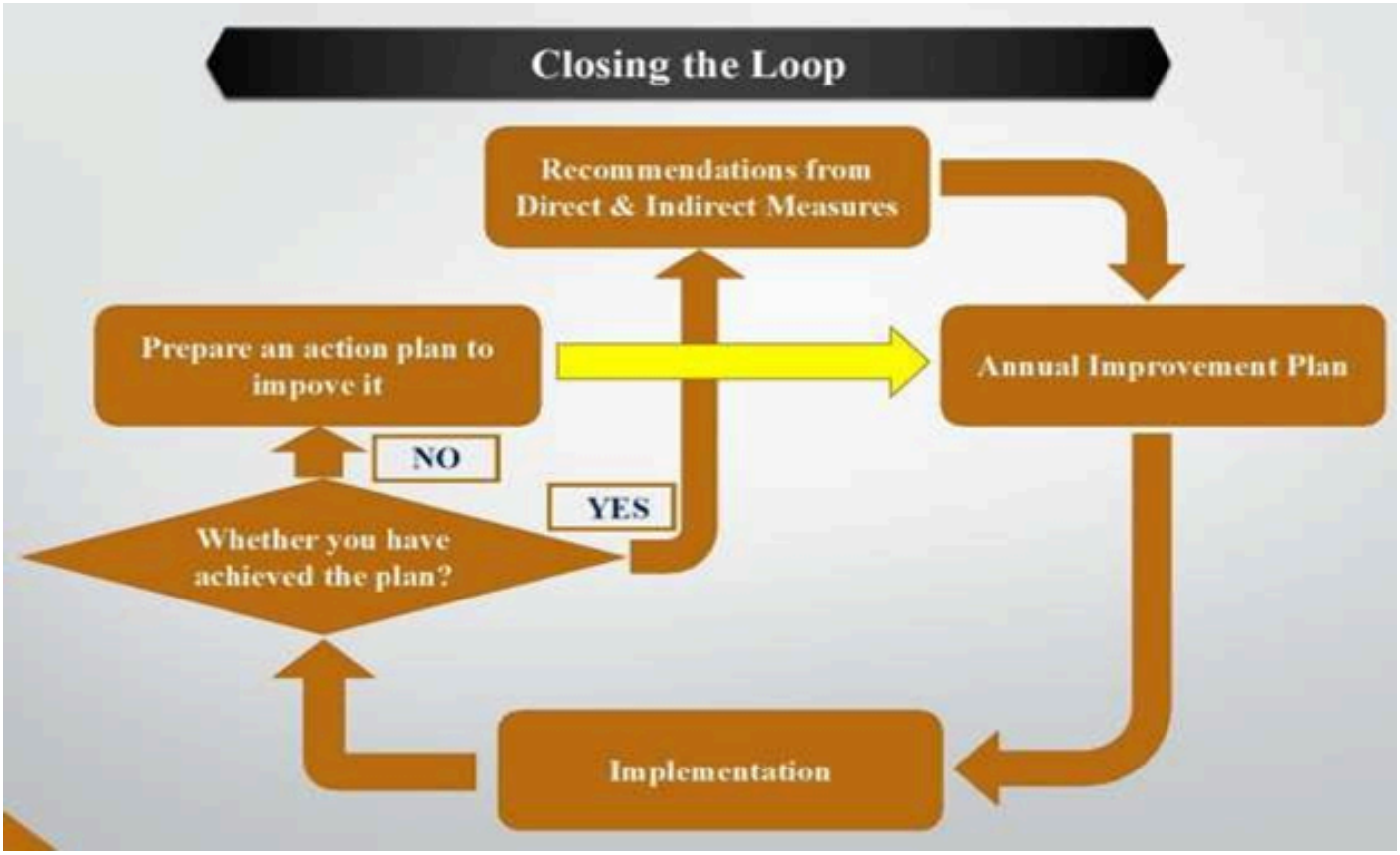
4c. Implementing changes:

Changes may be proposed to any or all the following: -

- **Assessment Plan:** Review the statement(s) of CLOs and the methods of measurement.
- **Curriculum:** Review prerequisites, course sequence, course content, and add/drop course(s).
- **Academic Operations:** Change of teaching staff, implementation of additional training, etc.

PROVIDE FEEDBACK

The results and information obtained should be distributed to faculty and other stakeholders to obtain their ideas on how to improve the program. Faculty will link the results to educational/curricular initiatives and will assess the degree of alignment between them and the program goals and CLOs. The evaluation results will be used to initiate work aimed at improving the program.



Programs' Process of Closing the Loop

The frequency of assessment

Assessment type	Frequency	Stakeholder involved	Performance Targets	How data is collected	Evaluation results (analysis)
CLOs	• Every semester	• Students • Faculty	• 3.75 / 5 with 80% exceeding the level of 75%	• Course reports	Quality Committee
PLOs	• Every year • Every assessment cycle	• Students • Faculty • Alumni • Employer	• 3.75 / 5 with 80% exceeding the level of 75%	• Course files • Rubrics • Surveys	Quality Committee

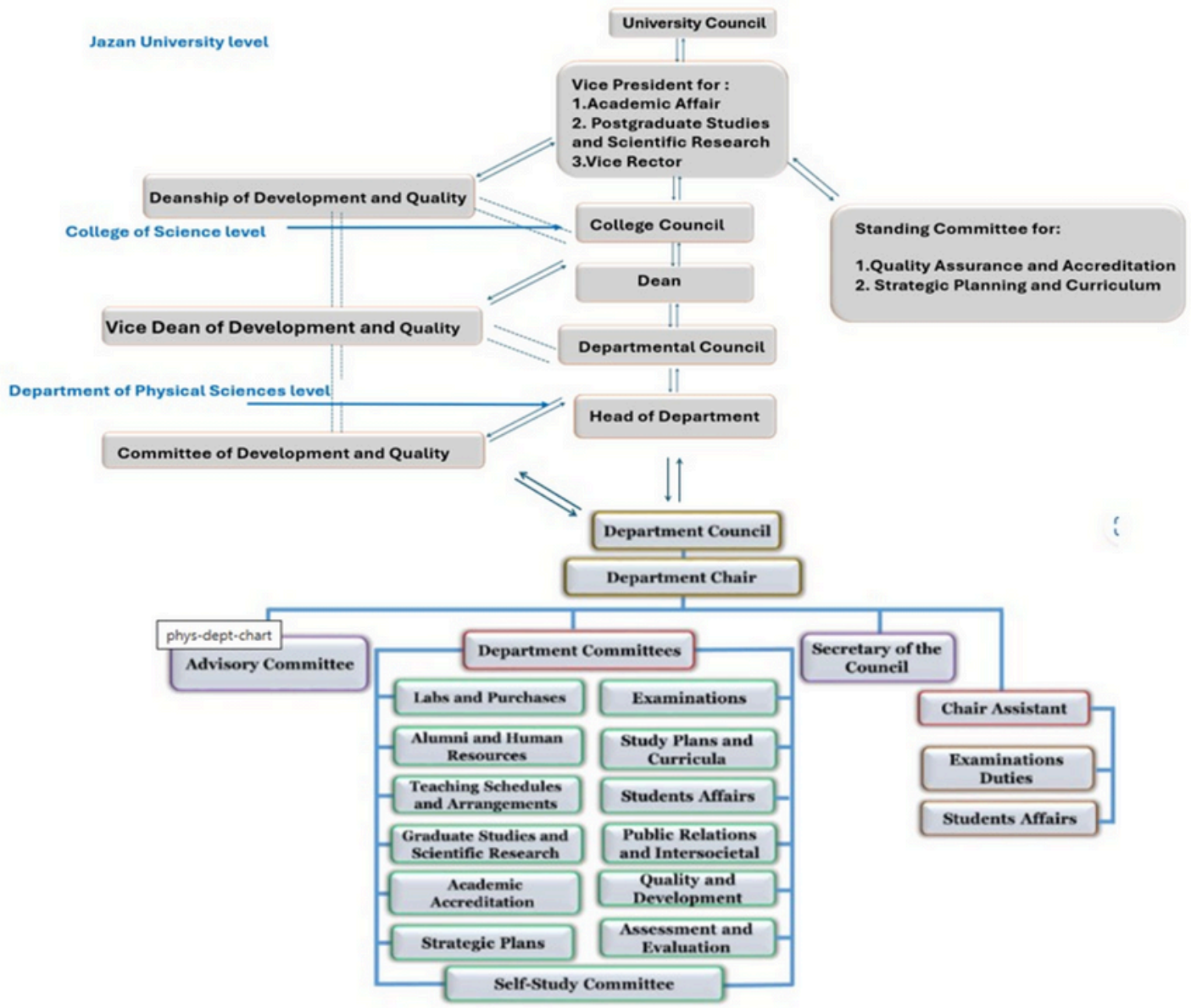
Key Performance Indicators for Postgraduate Programs

Standard	Code	Key Performance Indicators	Description	Frequency
-1- Teaching and learning	KPI-PG-1	Students' Evaluation of Quality of learning experience in the program	Average of overall rating of final year students for the quality of learning experience in the program.	Annual
	KPI- PG-2	Students' evaluation of the quality of the courses	Average students' overall rating of the quality of courses in an annual survey.	Every Semester
	KPI-PG-3	Students' evaluation of the quality of academic supervision	Average students' overall rating of the quality of scientific supervision in an annual survey.	Annual
	KPI-PG-4	Average time for students' graduation	Average time (in semesters) students spend to graduate from the program.	Annual
	KPI-PG-5	Rate of students dropping out of the program	Percentage of students who did not complete the program to the total number of students in the same cohort.	Annual
	KPI-PG-6	Employers' evaluation of the program graduates' competency	Average of the overall rating of employers for the competency of the program graduates in an annual survey.	Annual
-2- Students	KPI-PG-7	Students' satisfaction with services provided	The average of students' satisfaction rate with the various services provided by the program (food, transportation, sports facilities, academic advising, etc.) measured on a five-point scale in an annual survey.	Annual
-3- Faculty members	KPI-PG-8	Ratio of students to faculty members	The ratio of the total number of students to the total number of full-time and full-time equivalent faculty members participating in the program.	Annual
-4- Research and projects	KPI-PG-9	Percentage of publications of faculty members	Percentage of faculty members participating in the program with at least one research publication during the year to total faculty members.	Annual

Standard	Code	Key Performance Indicators	Description	Frequency
	KPI-PG-10	Rate of published research per faculty member	The average number of refereed and/or published research per 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)	Annual
	KPI-PG-11	Citations rate in refereed journals per faculty 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).	Annual
	KPI-PG-12	Percentage of students' publication	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.	Annual
	KPI-PG-13	Number of patents, innovative products, and awards of excellence	Number of: a. Patents and innovative products National and international excellence awards obtained annually by the students and staff of the program.	Annual

THE QUALITY ASSURANCE PROCESS OF MASTER OF SCIENCE IN PHYSICS PROGRAM

The quality assurance system in Master of Science in Physics program organized according to the following chart



The Quality Assurance Process of Master of Science in Physics Program

The quality assurance process for the Master of Science in Physics program adheres to the established procedures of the Physics Department. As depicted in the above diagram, The Physics program complys with the quality assurance standards of the College of Science, which in turn align with the comprehensive quality assurance framework of Jazan University. This framework is governed by the NCAAA quality assurance standards. The relevant quality assurance systems at each level, in addition to the NCAAA quality handbooks, are coded and attached below for the details information about the quality system at Physics program.

Quality Management of Physics Program

Quality Management of College of Science

Quality Management of Jazan University

NCAAA Handbook for Quality Assurance