2025

Student Manual

MASTER OF SCIENCE IN PHYSICS

College of Science

Jazan University

https://jazanu.edu.sa/en

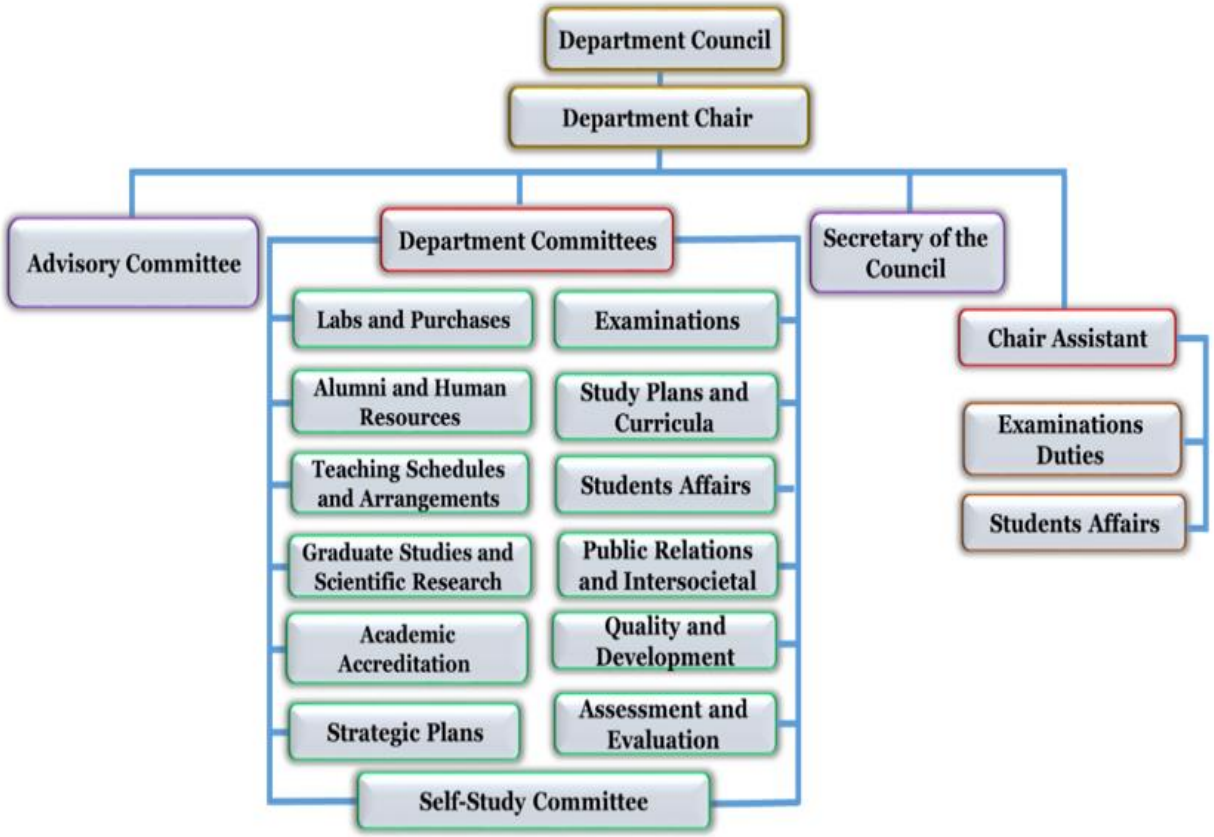
Contents

1. Program Governance and Management

1.1. Introduction

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 Programs in Engineering, Informatics, Natural Sciences and Mathematics (ASIIN).

1.2. Organizational Structure



1.3.Units and Committees

Units and Committees to ensure optimal program output and maintain the quality standards of the Physics department, several committees are established to monitor and oversee the regular progress and functioning of the system. The department comprises different committees, each assigned with specific responsibilities as shown below. *One member of each committee will be presented on* **Program Postgraduate Quality Assurance Committee.** These committees are responsible for collecting and submitting all the evidence of the quality standards and support the accreditation committee to get all the required evidences.

1.3.1 Laboratories and Equipment Committee

The laboratory management plan includes:

- Measurement of occupancy rates in laboratories.
- Measurement We cause the number of students to the number of coefficients.
- Preparing the technical report for the laboratories.
- Measuring the percentage of department employees' satisfaction with the services and facilities in the laboratories (questionnaire).
- Requests for the needs of student and research laboratories.
- Updating and activating research laboratories.

1.3.2 Schedules and Examinations Committee

- Organizing and holding additional study lectures to improve students' performance in standardized tests.
- Evaluate the results of standard and professional tests.
- Measuring occupancy rates in halls and laboratories.

1.3.3 Media and Public Relations Committee

- Organizing an introductory day for new students, in partnership with the Student Affairs and Academic Advising Committee
- Organizing trips for high school students to learn about the department's activities.
- Evaluation of the number of students who visit the department to learn about its programs.

- Update the department's website.

1.3.4 Committee on Education and Learning Resources and e-learning

- Activating cooperation with the Information Technology Department to provide the computer programs needed by the department.
- Measuring the percentage of curricula and programs for which an electronic copy of its content has been created.
- Training members to use the electronic learning resources available through workshops and training courses.
- Measuring the percentage of faculty members' satisfaction with professional development (questionnaire)
- Organizing and holding additional study lectures to improve students' performance in standardized tests (in cooperation with the Examinations Committee)
- Student satisfaction with learning resources (questionnaire)
- Providing up-to-date references for academic courses suitable for the program (in cooperation with the Study Plans and Curricula Committee)

1.3.5. Plans and Curricula Committee

- Restructuring study plans to suit the three semesters.
- Conclusion of cooperation agreements and academic twinning programs
- Introducing new courses in light of the needs of the labor market (based on the report of the Alumni Committee on the needs of the labor market).

1.3.6. Student Affairs Committee

- Create a skill register for students.
- Organizing an introductory day for new students in partnership with the Public Relations Committee.
- Student evaluation of the quality of learning in the program (questionnaire)
- Quality and Accreditation Committee.

1.3.7. Academic Advising Committee

- Organizing and holding additional study lectures to improve students' performance in courses with a low GPA.

1.3.8. Quality and Academic Accreditation Committee

- Ensure that all quality files are reviewed for all courses for each semester and that all standards of the National Commission are met for evaluation and academic accreditation of the NCAAA, with the preparation of the necessary reports on completed and faltering tasks and the opinion of the committee and its recommendations.
- Proposing general policies for quality in the department, in a way that qualifies it for academic accreditation.
- Preparing and organizing the files required to obtain academic accreditation.
- Following up the completion of the department's self-study reports and related activities.
- Monitoring the level of discipline and quality in the performance of the department and analyzing the relevant performance indicators.
- Develop a mechanism to measure the level of satisfaction of the beneficiaries of the department's services and submit a report thereon.
- Preparing annual reports for the program, analyzing direct and indirect measurement results, and developing the necessary improvement plans for that.
- Arouse the spirit of competition and challenge between the department's faculty members, students and employees for the purpose of development and excellence.
- Preparing and organizing training courses and workshops for all employees of the department to ensure improving the quality of performance in the department.

1.3.9. Scientific Research Committee

- Collecting and analyzing scientific publishing data, including:
    - Percentage of scientific publication in the department
    - Average citations in refereed journals for each faculty member
    - Number of research papers published in ISI
    - Number of research papers classified in Scopus
    - Number of research partnerships
- Organizing scientific events such as workshops, conferences, scientific seminars in the department
- Modernizing and activating research laboratories in cooperation with the Laboratories and Purchasing Committee

- Surveying the needs of the government and private sectors to be taken into account in research projects
- Facilitating the participation of researchers in scientific conferences.

1.3.10. Planning and Development Committee

- -Follow up the implementation of the strategic plan.
- Calculating the average number of professional development hours for faculty members.

1.3.11. Innovation and Entrepreneurship Committee

- Maximizing the use of the research equipment in the department
- Providing field training courses for students
  Obtaining the support of businessmen with whom partnerships can be concluded.
- Establishing a scientific club in the department
- Measuring the number of students receiving sponsorship from the relevant authorities
- Number of innovations and pioneering works

1.3.12. Department Advisory Committee

- Evaluation of the mission and objectives of the physics program at Jazan University
- Contribute to the process of evaluating and developing the objectives of the program
- Encouraging cooperation and communication between the program and the employers
- Discussing the skills, knowledge and competencies required in the labor market in a way that enhances employment opportunities for graduates
  the program
- Participate in formulating the specifications of the graduates of the program and make the necessary updates on them as needed.
- To achieve Vision 2023
- Discussing any modification that may occur to the program and study plan, and the extent to which this is appropriate to market requirements the job.
- Participate in reviewing and developing study plans for the program.

- Obtaining feedback on the efficiency and skills of graduates of the Physics Program who are engaged in the labor market.

1.3.13. Activities Committee

- Measure the Student satisfaction with the services provided.

1.3.14. Community Partnership Committee

- Educating students about the importance of volunteering to serve the community through educational seminars.
- Motivating department members to conduct training courses outside the department.
- Calculating the total number of volunteer hours made by the students of the department.
- Measure beneficiaries' satisfaction with community services.
- Calculating the number of community programs and initiatives.

1.4 QMS

The QMS is a dynamic process for ensuring academic standards and quality improvements at master`s program at Physics.

The master of Science in Physics program Approval and Review

Postgraduate program approval is the process by which new PG degree programs are checked against academic quality and standards expectations. Program review is the quinquennial process of reflecting on existing PG degree program delivery and student experience and planning for the next cycle of program enhancement.

Annual Monitoring

This process forms part of the University's evidence in assuring itself and outside agencies of the quality of its PG education provision and provides opportunity to reflect on current provision and to consider enhancements. The Annual Report on PG program level has three key purposes:

1. It allows Faculties to reflect on current research degree provision;
2. It provides opportunity to share (good) practice across the University via the program
3. It assures the quality of the research degree provision.

Periodic Review of PG Degree Provision

Periodic review is conducted at Faculty level and forms part of the Quality Monitoring and Enhancement (QME) Framework at Jazan University. It evaluates the operation and performance of a faculty's entire PG degree provision, and is conducted every five years in accordance with a schedule determined by PG QME Subcommittee. However, PG program may be subject to more frequent review if significant concerns have been identified and/or where there has been significant change to the structure and delivery of its provision.

The scope of periodic review includes:

- The student lifecycle from recruitment and admission through progression review, examination and award;
- The student experience;
- The research environment and culture, and the resources available to support students and supervisors;
- Training and development for students and supervisors.

The master of Science in Physics program Quality System Manual:

Postgraduate Program Quality System Manual is the main document to explain the policy and planning by program management. Program Quality System Manual is the main source of reference other than NCAAA and University Quality Management System (MQS). The scopes of Quality System Manual are: -

- Scope of implementation for Program Quality Assurance.
- Quality policy and quality objectives of program.
- Not-applicable to NCAAA requirements (Need to be modified as per NCAAA latest modifications if any)
- Reference to procedures and other support documents.

 # The Master of Science in Physics Program Quality Assurance System

Mission, Vision, and Goals of The MSc in Physics Program

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.
Objectives	• 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.
Goals	• 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

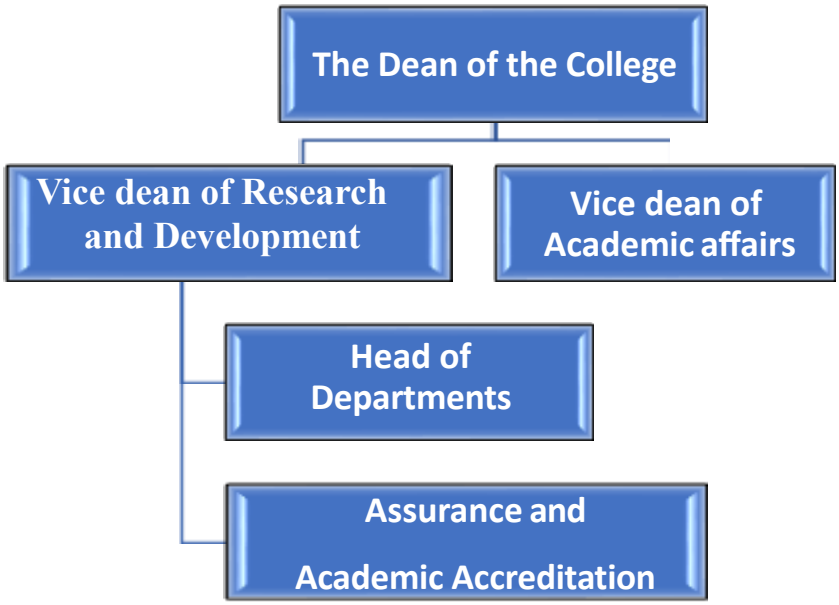
Stakeholders of the programs

Major stakeholders of the programs are:

- Students
- Faculty members and other staff
- Alumni
- Industry / Employers
- Others

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



Responsibility of Head of Department

Head of Department, as executive officers of the academic department, contributes to the achievement of the University and faculty strategic plans by providing effective management and academic leadership within the department. These responsibilities include quality assurance of the program, maintaining documentation relating to courses, monitoring staff performance, appraisal of teaching staff, and providing opportunities for individual staff development. They are also responsible for providing appropriate resources to support all teaching undertaken by the academic department. Specific responsibilities are:

1. Responsible and accountable for setting and advancing the academic strategy of the Department in line with Faculty and University strategic plans and direction.
2. Oversee, organize and develop the core activities of teaching, research, examining, advising and other service activities and knowledge transfer, consulting with all departmental colleagues.
3. Develop postgraduate programs in order to attract new students and markets.
4. Ensure the highest levels of quality, integrity and ethics in teaching, learning and research within the department.
5. Ensure that staff performance is managed appropriately and that fair workload allocation processes are in place.
6. Ensure all staff has access to the necessary support to enable them to contribute fully and develop their skills and experience.

7. Ensure a safe and healthy environment for both staff and students, and full compliance with health and safety requirements.
8. Ensure that University equipment/ facilities under the department´s control is properly maintained and serviced as required.
9. Enhance the quality and volume of research by encouraging and enabling demonstrable research achievement within the department.

Committees and Responsibilities

The College Postgraduate Quality Assurance and Academic Accreditation Committee

This committee has the following duties:

1. Apply all quality standards in all direction in Postgraduate programs in the college to improve the learning outcomes according to NCAAA requirements.
2. Generalize all accreditation standards and eligibility requirements in the program.
3. Follow the process of program and course specifications preparation according to NCAAA forms.
4. Follow the preparation of all course reports and the results of Course learning outcome calculations and the program specific statistics.
5. Preparation and analysis of the questioners responsible for measuring the KPIs according to NCAAA models.
6. Follow the preparation of all annual program reports according to the NCAAA formats and discuss the results of program learning outcome assessment and program performance indicators (KPIs) and put the improvement and development action plan for the program.
7. Supervising the accreditation activity performance in the program.
8. Supporting the continuous improvement in the program performances through follow up the recommendations obtained from Deanship of Academic Development (DAD).
9. Regulate the offering of workshops and training programs for improvement and develop of the teaching staff performance
10. Make monthly meeting to submit the meeting reports to the Vice dean of Research and Development to approve

Key Performance Indicators Assessment

Assessment policy and principles: The Master of Science in physics program recognizes its responsibility to ensure the equitable treatment of all its students in assessment. To maintain a comprehensive assessment regime directed towards the fair and just assessment of students' performance against defined, published and externally endorsed criteria. Where appropriate, the detailed requirements of specific assessments may be modified to meet the needs of disabled students or those with specific needs. Such special assessment requirements would be identified during the admissions stage or when the special need was first recognized. The program has a varied diet of assessments designed into its courses, ranging from time-constrained examinations through to dissertations. A key element of the assessment methodology is the application of learning, and approaches which promote deep learning rather than shallow learning experiences.

Course assessment: The assessment for each course will vary according to the nature of the intended learning outcomes and how the teaching team judges these can best be assessed. The assessment is defined during program approval, and cannot be amended without re-approval of the course specification. The college-study plans and curriculum committee will actively review the balance of assessment used across the courses, to help promote the student learning whilst ensuring the intended learning outcomes are covered. An assignment must not be assessed as part of a course if the assignment has already been assessed and credit awarded as part of another course, i.e., no double-counting of credit for any item of student work. To ensure that all students are treated with equity, it is of key importance that all staff engaged in the assessment process undertakes their duties diligently and without the possibility of influence. So, any member of staff involved in student assessment who has any form of relationship with any student being assessed must declare that potential conflict of interest to the Dean of College. The Dean will take such steps as is necessary to secure the integrity and equity of the assessment process. Students must also adhere to the assessment regulations.

Process of Assessment: NCAAA regulations and forms are implemented for all documentations. These generally include reviews of departmental offerings, course content, textbooks, and examinations. Internally, the program reviews its entire curriculum periodically, re-evaluates textbooks, keeps current on national curriculum trends, and studies course grade distributions each semester. In addition, faculty share and review examinations, regularly collect student evaluations of teaching, assessment of learning outcomes for each course and report the scores of CLOs each semester from various exams. Programs also plan to get feedback from alumni and employers in a periodic manner.

Current Practices of Assessment:-

Purpose: Conduct course, assess student performance and evaluate outcome attainment

Data Collected: This loop represents the traditional course offering, where an instructor teaches the course, issues grades, and evaluates student performance relating to each course outcome. Each instructor has mapped course learning outcomes (CLO's) to program learning outcomes (PLO's) based on knowledge of course content.

Assessment Method: Each instructor, for each course, uses a combination of indirect assessment (student and instructor post assessment surveys (to be implemented)) and direct assessment of student work through various activities and exams.

Evaluation Method: We use courses to evaluate attainment of each outcome. Student Outcomes vs. Courses, indicates which outcomes are covered in each course. Assessments of the outcomes addressed in the courses in final semesters are used to determine the overall level of attainment of the outcome in the program.

Selected Courses Identified for Program Assessment: Compulsory and elective courses

Program Learning Outcomes (PLOs) assessment planning: The necessary components of the assessment plan of Program are:-

- **PLAN**

CLOs Assessment Method: In this section, the explanation on how the PLOs is assessed using the CLOs assessment method (course assessment) will be introduced. Below are the major steps used in this assessment method (CLOs assessment method):

PLOs Assessment Plan using CLOs: The data are collected and evaluated every semester for PLOs assessment. An improvement plan report including a list of minor and major changes is then prepared according the evaluation results of

PLOs and their corresponding CLOs. Minor changes can be implemented during the assessment cycle while the major changes can be implemented by the end of the assessment cycle timeline.

Setting target is an important key to the continuous improvement process**:** It is highly recommended that you do not set targets until after the first cycle of data collection. Also, it is crucial to be realistic about your program's context.

Defining CLOs: CLOs were defined with the involvement of all instructors and the consideration of the main topics and concepts of courses. All requirements and characteristics of Mapping CLOs to PLOs: After the development of CLOs, they were mapped to PLOs in order to ensure that CLOs have certain contribution to the PLOs at different levels in the program.

Course Assessment plan**:** Each instructor prepares a course-based assessment plan (as described in the course specification) that describes which assessment methods will be used to assess which CLOs in order to accurately measure and evaluate learning outcomes. In other words, the assessment methods at the course level (exams, assignments, HomeWorks, etc.) are designed to assess and evaluate the extent to which each CLO is being attained.

- **DO**

Teaching Strategies Plan: In course specification the appropriate teaching strategies and other educational practices (lecture, group discussion, projects, etc.) were specified and will be followed during teaching. Those teaching strategies are aligned with the CLOs and support the needs of students. The CLOs, assessment methods, and teaching strategies are considered as an integrated learning and teaching process.

Designing course assessment methods: To have an accurate measurement of CLOs attainment, all questions are designed according to CLOs. In other words, the instructors align the questions of all course’s assessment methods to CLOs. Moreover, the levels of difficulties of questions must be very consistent with the level of learning in the CLOs. For example, the introductory courses are mostly related to knowledge and comprehension levels while intermediate courses are related to Skills (applying, analysis and design levels of the bloom's taxonomy) (see the table of weight % of learning domain).

Procedures of identifying assessment methods for each learning outcomes:-

1. Align assessment method with outcome to be assessed.

2. For each outcome and means of assessment, criteria for success should be established which includes benchmarks that the program sets for the outcome.

- Criteria are most often stated in terms of scores out of 5, percentages, averages, or other quantitative measures.
- For each learning outcome describe where you would like to be within a specified time period (e.g. 10% improvement in student performance within two years).
- Also, determine what standards are required from students.

Conducting assessment and collecting data: The performances of students are then collected through exams, assignments, projects, etc. at the course level. More specifically, their performance in questions related to CLOs should be observed and analyzed in every course.

- **ANALYZE**

Evaluation Results: The instructors grade students' performances by CLOs. In other words, the grades of students for each CLO are reported out. By the end of the semester, the instructor prepares CLOs. An Excel template was prepared to make the process straightforward and it includes the analysis of data for all kind of exams and activities to get the scores and achievements of students in all CLOs with graphical depiction.

- Faculty should be the ones responsible for the analysis and interpretation of data. It is important to summarize the results in a meaningful way so that they can be reviewed and actions needed to improve the program can be determined.

- Need to keep in mind the audience when analyzing results like who will access and use the data, and accordingly need to vary analysis and reporting procedures according to the identified audience.

Based on our context, our target is defined as: A CLO is considered as Exemplary (E) if scored ≥ 90%, Satisfactory (S) if scored 85% to 90%, Adequate (A) if scored 80% to 85%≥, Meet the criteria if scored 75% to 80% and Unsatisfactory (U)) if scored < 75%

The % of student's achievement (the % of students who get or exceeded 75%) is considered as Exemplary if ≥ 90, Satisfactory (S) if ≥ 85, Adequate (A) if ≥ 80, Meet the criteria if ≥ 75, and Unsatisfactory (U) if < 75.

Furthermore, the achievements of corresponding PLO's at the course level are calculated by using the mapping of CLOs to PLOs and the CLOs Achievements Report. Finally, the achievements of the program's PLOs are calculated using students' performances in CLOs.

- ACT

Designing Improvements: Using evaluation results of CLOs and PLOs, it is now important to design a set of improvements to improve the quality of the program as a whole. Designing improvements is done by the end of each semester. More specifically, each instructor uses the evaluation results of CLOs and PLOs to prepare course report that contains a list of actions to improve the curriculum and syllabi and the delivery of the course as well as the performance of the instructor. Further, the Program Curriculum Committee (PCC) with the Program Assessment Committee (PAC) meet with the staff members and approve a list of minor and major improvements. Minor actions can be implemented any time during the assessment cycle and may affect any aspect of the program (teaching strategies, exams, guidelines, policies, etc.). However, major improvements are kept for later discussion and approval. The cumulative major improvements are discussed with other stakeholders for final approval by the end of the assessment cycle. The main components of our improvement plan using CLOs assessment data are Actions to be taken, Responsible people or unit, Timeline: Starting date of implementation and deadline, Rational and Types of actions: Major or Minor

Implementing improvements: The improvement plan designed in the previous point is then distributed by the department head to the responsible people for further actions. The assessment committee observes the implementation of the improvement plan. As mentioned above, the CLOs assessment method has several advantages such as direct assessment of PLOs, faculty engagement in assessment process, easy to implement, and semester based continuous improvement process.

In our approach, we enhanced PLOs assessment using CLOs by a set of procedures to maximize validity and accuracy of the assessment results. Below are the major activities that we did for this purpose:

- Major actions are based on cumulative results over an assessment cycle rather than one semester data. Ensure that learning perspective to be learning outcomes oriented.
- Regular revision of the alignment of CLOs to PLOs to ensure better improvement process

- Assign a dedicated staff member as a course coordinator for each course. The main role of the instructor is to ensure that the same syllabus (content, topics, grading) is followed in more than one sections for the same course. The course coordinator also reviews the assessment methods at the course level to ensure that they are appropriate for the CLOs.
- Follow a unified grading policy and scheme to ensure that the student knowledge and skills are represented by the grade.
- Enhance the mechanism of course distribution to teachers to ensure that the right instructors with good experiences are teaching the appropriate courses.

✓ At this point in the continuous improvement cycle, the planned changes should be implemented.

✓ These changes could be to the content of the curriculum, staffing, facilities, among others.

Implementing changes

Assessment Plan

- Revision of intended learning outcome statement (s)
- Revision of measurement approaches
- Collection of and analysis of additional data and information
- Changes of data collection methods

Curriculum

✓ Changes in pedagogical practices

✓ Revision or enforcement of prerequisites

✓ Revision of course sequence

✓ Revision of course content

Academic processes

- Modification of frequency or schedule of course offerings
- Improvements of technology
- Changes in personnel

- Implement additional training
- Other implemented or planned change

Explanation of PDCA Definition as used in the Evaluation of the Process Factor

The Deming Cycle (called the Shewart Cycle) is a set of activities (Plan, Do, Check, and Act) designed to drive continuous improvement. The Plan-Do-Check-Act (PDCA) cycle applies the scientific method to problem solving. The key is to use this as a cyclical process. However, most often it is not. Often the only action is to decide on a modification and to do it (PD). It is a systematic process management methodology that assures that processes are maintained at the best performance level achievable, given the present design of the process.

Plan (P):

Definition: Plan refers to the establishing of the objectives and processes necessary to deliver results in accordance with the expected output. It determines what needs to be done, when, how, and by whom. It signifies a set of intended actions, through which one expects to achieve a goal affecting the output, which is the focus. By making the expected output as the main focus, it emphasizes on the completeness and accuracy of the specification which is also part of the improvement. In the plan phase, the problem-solving team analyzes data to identify possible causes for the problem and then proposes a solution. Plan the process management system by linking the daily work to the institution, college, program or administrative unit strategy and stakeholders'

requirements; determine and document the best steps for completing the work, what will be checked, how to check, how often, etc.

Do (D):

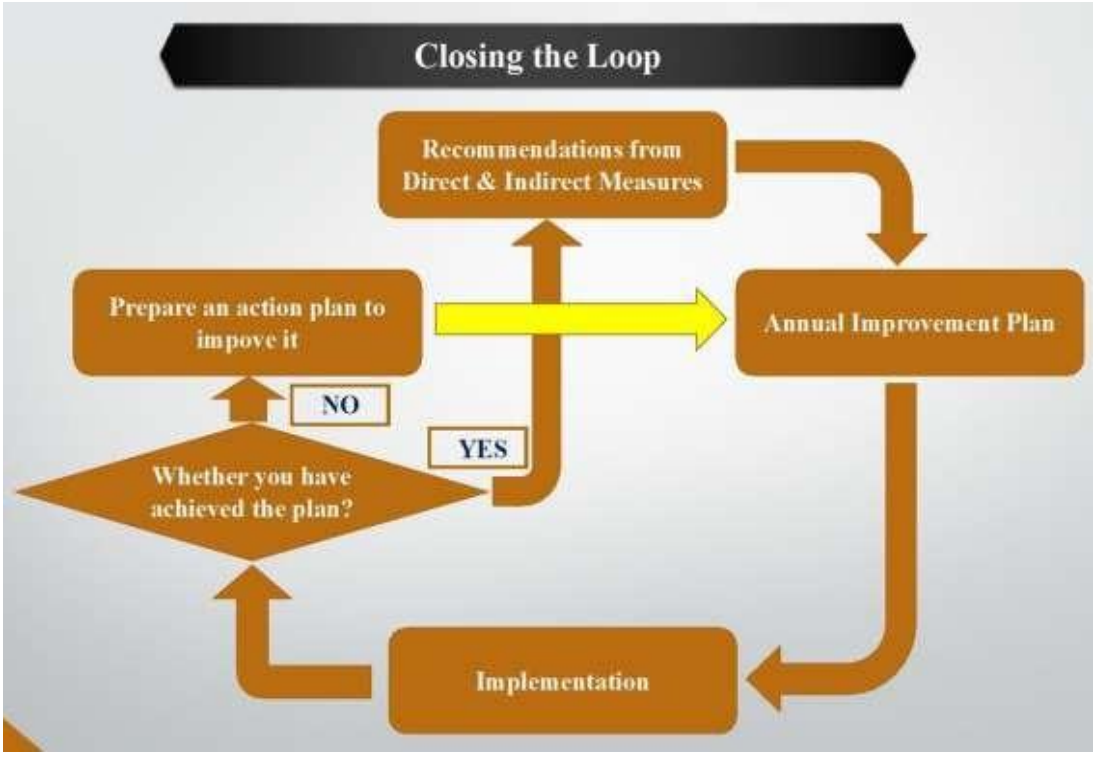
Definition: Do refer to implementing the new processes or Do the actions as specified in the plan.

Check (C):

Definition: Check refers to the analysis of the results of carrying out the plan and the measuring of the new processes and compares the results against the expected results to ascertain any differences. Check actual performance against the Process Management Plan (PMP) by measuring and reviewing the process outcomes (Y's) and key input and process variables (X's) on a regular, timely basis.

Act (A):

Definition: Act refers to analyzing the differences to determine their cause. Act when there is a gap between the "as-is" of do and the "should be" of plan and take appropriate steps to close the gap between planned and actual results. This may require normal control activities to identify and fix what went wrong. Each will be part of either one or more of the P-D-C-A steps. Determine where to apply changes that will include improvement. After passing through these four steps does not result in the need to improve, refine the scope to which PDCA is applied until there is a plan that involves improvement.



Programs' Process of Closing the Loop

Evaluation of Program Quality Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Effectiveness of teaching & assessment	Students, Faculty	Direct assessment of CLOs, Surveys	End of semester
Leadership	Graduates, Alumni, Employers	Surveys	End of academic year
Partnership	Employer	Survey	End of academic year
Learning resources	Employers	Survey, visits, interviews	End of academic year

Program KPIs

The period to achieve the target (2) year.

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

	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

2. Program Description

2.1 PLOs

Knowledge and Understanding:	
K1	Describe theories, techniques, practices, materials, and terminology relevant to physics topics.
K2	Discuss physical phenomena and their recent developments in various research fields.
Skills:	
S1	Apply theories and creative solutions to solve physical problems.
S2	Build critical thinking skills to provide reasonable justification analysis.
S3	Demonstrate abilities in qualitative and quantitative methods for analyzing and reporting data using computational and IT tools.
S4	Develop sufficient skills to conduct advanced experimental work and high-level graduate research (theoretical and experimental).
Values, Autonomy, and Responsibility:	
V1	Adhere to the ethical principles and safety requirements.
V2	Demonstrate ability of independent lifelong learning.
V3	Show effective individual responsibility and teamwork.

2.2Study Plan

Study plan for Master`s program in physics based on two semester scheme

Program Structure		**No. of Courses**	**Credit Hours**	**Percentage**
Course	Compulsory	**6**	**18**	**54.55%**
	Elective	**3**	**9**	**27.72 %**
Graduation Project (if any)		**-**	**-**	**-**
(if any) **Thesis**		**1**	**6**	**18.18%**
Field Experience (if any)		**-**	**-**	**-**
Others (.....)		**-**	**-**	**-**
Total		**10**	**33**	**100%**

2.3 Program Courses:

Level	Course Code	Course Title	Compulsory or Elective	Pre-Requisite Courses	Credit Hours
Level 1	PHYS600-3	Mathematical Physics	Compulsory	---	3
	PHYS601-3	Classical Mechanics	Compulsory	---	3
	PHYS602-3	Classical Electrodynamics	Compulsory	---	3
Level 2	PHYS603-3	Quantum Mechanics	Compulsory	---	3
	PHYS604-3	Statistical Mechanics	Compulsory	---	3
	PHYS6XX-3	Elective Course 1	Elective	---	3
Level 3	PHYS6XX-3	Elective Course 2	Elective	---	3
	PHYS6XX-3	Elective Course 3	Elective	---	3
	PHYS695-3	Research Seminar	Required	---	3
Level 4	699PHYS-6	Thesis	Required	---	6

Compulsory Courses (15 Credits)

Course title	Course Code	Credit Hours
Mathematical Physics	PHYS600-3	**3**
Classical Physics	PHYS601-3	**3**
Classical Electrodynamics	PHYS602-3	**3**
Quantum Mechanics	PHYS603-3	**3**
Statistical Physics	PHYS604-3	**3**

Elective courses (9 Credits):

Students are required to choose three (3) courses from the following list according to the specialization and under the suggestion of their supervisors.

Course title	Course Code	Credit Hours
Computational Physics	PHYS610-3	**3**
Physics Laboratory	PHYS611-3	**3**
Atomic and Molecular Spectroscopy	PHYS620-3	**3**
Quantum Optics	HYS621-3	**3**
Plasma Physics	PHYS622-3	**3**
Solid State Physics	PHYS640-3	**3**
Materials Science	PHYS641-3	**3**
Magnetism and Superconductivity	PHYS642-3	**3**
Nuclear Structure and Spectroscopy	PHYS650-3	**3**
Radiation Physics	PHYS651-3	**3**
Quantum Field Theory	PHYS660-3	**3**
Particle Physics	PHYS661-3	**3**
Selected Topics in Specialised Physics	PHYS-665-3	**3**

Research Seminar and thesis (9 Credits):

Course title	Course Code	Credit Hours
Research Seminar	PHYS695	**3**
Thesis	PHYS699	**6**

2.3 Teaching and learning strategies

Code	Program Learning Outcomes	Teaching Strategies
Knowledge and Understanding		
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		
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		
V1	**Adhere** to the ethical principles and safety requirements.	Hands -on practice, Expository Discovery and Interactive Discussions
V2	**Demonstrate** ability of independent lifelong learning.	Expository and Discovery, and Interactive Discussions.
V3	**Show** effective individual responsibility and teamwork.	Expository and Discovery, and Interactive Discussions.

2.4 Assessment methods

Direct measures:

- This type of assessment will rely on normal tests and exams and utilize rubrics that were prepared for both grading and assessment at the program level.
- The Rubrics will provide a suitable mean for faculty members to have a consistent manner of evaluation of all kinds of assessment questions based on their rubrics.
- With rubrics, the evaluation will be done systematically and consistently by any faculty member.

- Rubrics also will help students to understand the expectation of the department to gauge student progress over time, and to provide a basis for faculty discussions concerning possible areas for program improvement.
- Moreover, with Rubrics students will know in prior the judgment procedure of their achievements in all kinds of assessment.

Indirect Measures

- Every semester course evaluation by students (CES) is managed and reported for both course reports as well as Annual Program Report (APR).
- Two other important surveys are conducted for evaluation of student experience (EES) at the middle of the program (3^{th} level) and program evaluation survey (PES) at the end of the program (4^{th} level)
- Faculty members` opinions are also taken through a Faculty Members` satisfaction Survey (annually).
- Moreover, 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 Physics Program to evaluate and improve the target of student outcomes to meet the requirements of the job market.

In all above-mentioned Surveys, Physics Program sets a threshold level of score 3 out of 5 for all responses on these surveys for satisfactory achievements.

2.5 Program Evaluation

2.5.1 Annual program evaluation

- Program learning outcomes report (PLOs).
- Annual Program Report (APR).

2.5.2. Periodic program evaluation

- Course learning outcomes (CLOs)
- Every semester course evaluation by students (CES).
- Moreover, 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 Physics Program to evaluate and improve the target of student outcomes to meet the requirements of the job market.

2.5.3 Role of student in program evaluation

The course evaluation survey (CES), students` satisfaction with provided services (SES), students` evaluation of the scientific supervision and program evaluation survey are designed to be evaluated by only students in order to know the strength and weakness of the program which will help in improving the program as required. Therefore, it is important to make aware of the students for the importance and process of their evaluations.

3. Student Support

3.1Academic Counselling

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

3.2 Student support

Low achievers:

- Teachers assign those students more assignments, help them during office hours and give them opportunities as and when needed.

Disable:

- **T**he department, along with the college administrators, tries to create 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.

4. Program Evaluation

2.3 Program Evaluation

2.5.1 Annual program evaluation

- Program learning outcomes report (PLOs).
- Annual Program Report (APR).

2.5.2 Periodic program evaluation

- Course learning outcomes (CLOs)
- Every semester course evaluation by students (CES).
- Moreover, 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 Physics Program to evaluate and improve the target of student outcomes to meet the requirements of the job market.

4. Student Affairs

4.1 Student Admission criteria

- University Council shall determine the number of students admitted each year to graduate studies programs based on the recommendation of the Council of the Deanship of Graduate Studies, and the proposal of the concerned departments and colleges.
- For admission to Graduate Studies, the applicant must fulfill the following requirements:

1. To be of Saudi nationality or has an official scholarship if the applicant is non-Saudi.
2. To have a university degree from a Saudi university or another equivalent accredited university.
3. To be medically and morally eligible.
4. To submit two recommendation letters from staff members who taught him/her.
5. To obtain a written undertaking of approval from employer if the applicant is an employee.
6. B.Sc. Grade 3.75 or higher in the subject.
7. English language proficiency (TOEFL 400)
8. Interview (Pass)

- For admission to the Graduate Studies program for a Master's Degree, the final grade of the applicant in the university must be ‹Good› or better and ‹Very Good› or better for Physics courses. The Council of the Deanship of Graduate Studies, based on the Department Council recommendation and College Council approval may add other requirements deemed necessary for admission.
- A student may be admitted to a Master's program in a field different from her/his major based on the concerned Department and College Councils recommendation, and the approval of the Council of the Deanship of Graduate Studies.
- For admission to the Master's program, the concerned department may specify that the applicant must undertake a number of complementary courses from an earlier stage, in a period not more than three semesters, taking into consideration the following:

1. The complementary course must be first of a grade of ‘Good’ or better.

2. The cumulative GPA in the complementary courses must be (Very Good) or better.
3. Passing the complementary courses before registering for the graduate studies program. The department may allow registration in graduate studies only if one or two complementary courses remain to be studied.
4. The period of the complementary courses is not included in the period specified for obtaining the degree.
5. The complementary courses are not included in the calculation of the cumulative GPA of graduate studies.

- Deanship of Graduate Studies shall be responsible for the applicants' admission and registration in coordination with the Deanship of Admission and Registration.
- The student must not enroll in two graduate studies programs simultaneously.

4.2 Student activities

These activities aim at providing a solid ground for students to promote their developing needs whether on the cultural level or on the social one. Students who are interested in joining the activities can be paid per hour. They will be able to communicate online with students, Deanships and different colleges to receive suggestions that will, in turn, remove any obstacle on the students‟ pathway which is our ultimate objective. Different students‟ activities are designed to meet the needs and interests of students. They help students utilize their leisure time in useful activities. Students are permitted to join these activities under the guidance of the faculty staff. These activities include, but not limited to:

- Social and cultural activities
- Sports activities
- Student clubs: reading forum club, student relations club, roamers club, participants club, educational club, scientific research club, excellence club, drama club, scientific club, media club and photography club
- Student competitions such as College Star Award and University Star Award
- Open day activities
- Leisure trips such as spring camping and university beach tours etc.

4.3 Recreational activities

Some of the active and passive recreational activities:-

- Active recreational activities

- Football
- Volleyball
- Table Tennis
- Tennis
- Athletics

- Passive recreational activities

- Walking
- Camping
- Running/Jogging
- Photographing nature

5. Alumni Affairs

The vice-deanship offers non-academic services which in turn make the learning and education processes more enjoyable. Some of these services are as follows.

5.1 Issuing Student IDs

A student affair is responsible for Issuing students IDs after they are officially accepted and after finishing all registration procedure. The student must bring a recent photo for his ID card which must be worn at all times on campus and during exams.

5.2 Housing

Student affairs are responsible for student housing according to the university housing policy and regulations.

Responsibilities of Housing Department

 Supervises housing accommodation units

 Following up the service problems

 Create the best means of comfort for students

 Following up the janitorial works inside the student housing accommodation with the concerned department.

5.3 Students Fund

This treasurer is responsible for providing loans to students who are not financially stable by giving those loans starting from the second year. The student must deposit the money himself into the account number provided. The deposit slip must be handed over to the employee in charge. Students are not allowed to hand in cash to the employee.

5.4 Catering Service

The Catering Department supervises the university main restaurant and other cafeterias inside the university campus. The department is also responsible for completion of contracting formalities with the catering contractors who will provide food services to the students in the university campuses after meeting the prescribed health conditions. The catering department comprises qualified food management and health cadres who follow up and supervise the provision of food services inside the university.

5.5 Department Duties

Supervises the procedures for start of catering contracts.

Supervises the preparation, cooking and serving of food meals.

Supervises and follows up the health aspects of foods services.

Ensure that all served food is safe and clean.

Supervises selling of food coupons for the student according to the prescribed financial policies.

Participates in preparation of foods and meals for parties and courses organized by the deanship of student affairs and other university department.

5.6 Scholarships

The scholarship and international student's department at the University of Jazan was established to supervise the scholarships and provide necessary welfare for foreign students. The council of ministers organizing the regulations of non-Saudi students admitted in the higher education institutions in Saudi Arabia.

6. Thesis

6.1 Registration

- The graduate student shall submit her/his proposal, if any, to the Department after she/he fulfills the admission requirements and a statement on the topic of the master's thesis from King Fahad National Library. Upon recommending the proposal's approval, the Department Council shall suggest the name(s) of the supervisor and co-supervisor, if any, or the names of the supervising committee members and its chairperson. The proposal shall be submitted to and approved by the College Council before the Deanship of Graduate Studies approval.
- Topics chosen for a Master's Degree should be original and authentic.
- Master's dissertations are written in English based on the recommendation of the Department and the Deanship of Graduate Studies Councils. The submitted dissertation should include a detailed synopsis written in Arabic.

6.2 Supervision

- Dissertations shall be supervised by Professors and Associate Professors among the University staff members. Assistant Professors can supervise a Master's degree if two years have passed since being appointed in her/ his rank, and have written at least two refereed papers in her/his major, whether published or accepted for publication.
- Qualified and distinguished staff members from outside the University may supervise dissertations through resolution by the University Council based on recommendations by the Department and the Deanship of Graduate Studies Councils.
- A staff member from other departments may co-supervise a dissertation depending on the nature of the work, provided that the main supervisor is from the department in which the student is studying.
- A supervisor, whether solely or in collaboration with others, can concurrently supervise a maximum of four dissertations. When extremely necessary, the number shall be raised to five, based on the Department Council recommendation and approval of the College and the Deanship of Graduate Studies Councils. Each dissertation is equivalent to one hour in the staff member's teaching load if s/he is the only supervisor or the main.
- Upon terminating the University service of the supervisor or her/his inability to continue with the supervision of the dissertation, the Department proposes a substitute supervisor to be concurred by the College Council and approved by the Deanship of Graduate Studies Council.

- The supervisor shall submit a detailed report at the end of each semester to the Department Chairperson regarding the progress of the student's research study. A copy of the report shall be sent to the Dean of Graduate Studies.
- Upon completing the dissertation by the student, the supervisor submits a report to the Department Chairperson in this respect to continue with the procedures specified by the Council of the Deanship of Graduate Studies.
- If proven that the student is not serious about her/his study, or upon violating any of the research duties based on a report submitted by the supervisor, the Department shall send her/him a warning letter. If the student does not correct the warning causes, her/his registration shall be cancelled by the Council of the Deanship of Graduate Studies based on the Department Council recommendation.

6.3 Discussion

The regulations for selection of the defense/examination committee

- A committee is appointed to discuss the scientific thesis by a decision of the college council, based on the recommendation of the department council (graduate studies regulations ***No. 48***).
- The University Council sets the criteria for selecting members of the master's dissertation discussion committees and the mechanism for conducting these discussions, based on the proposal of the permanent committee council (***Article No. 49***). The Master's examination board should fulfill the following:
- An odd number of examiners shall be selected, and the supervisor is its reporter.
- The minimum number of examiners is three provided that the supervisor and the co-supervisor, if any, do not constitute a majority.
- The board members are subject to the requirements of dissertation supervision.
- A professor, or at least an associate professor, should be on the examination board.
- Resolutions are taken upon the approval of at least two thirds of the board members.

The requirements to proceed for thesis defense

- After the student has completed preparing the thesis, the supervisor of the thesis shall submit a report on its completion to the head of the department, attaching a copy of the thesis, in preparation for completing the discussion procedures determined by the college council (***Article No. 47***).

The procedures for defense

- The discussion committee shall prepare a report signed by all its members and submitted to the department head within one week of the date of the discussion (***Article No. 50***).

The criteria for evaluation and approval of the thesis

- A report signed by all examiners shall be submitted to the Department Chairperson within one week of the examination with one of the following recommendations:
- Accepting the thesis and recommending awarding the degree.
- Accepting the thesis with some amendments, without further discussion. One of the members of the discussion committee shall be authorized to recommend awarding the degree after ensuring that these amendments have been taken into account within a period not exceeding three months from the date of the discussion. The college council may make an exception to this, provided that it does not exceed six months from the date of the discussion Council.
- Completing the deficiencies in the scientific thesis, and the committee will rediscuss it within the period specified by the college council, based on the recommendation of the relevant department council, provided that it does not exceed one year from the date of the discussion.
- Not accepting the scientific thesis. Each member of the discussion committee on the scientific thesis has the right to submit any opposing views or reservations he has in a detailed report to the head of the department within a period not exceeding one week from the date of the discussion, and it will be submitted to the dean of the college with the report of the discussion committee.