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T14

Program Specifications (Postgraduate Degree)

Program Name: M.Sc. in Physics
Qualification Level : 7
Department: Physics
College: Science
Institution: Jazan University

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A. Program Identification and General Information

1. Program Main Location:		
Physics Department, Main Campus (Male & Female), College of Science, Jazan University		
2. Branches Offering the Program:		
NON		
3. Reasons for Establishing the Program:		
(Economic, social, cultural, and technological reasons, and national needs and development, etc.)		
<p>Science and technology play a significant role for improving and maintaining the socio-economic and cultural standard of not only Saudi Arabia but also the other Arab countries for the future in spite of diminishing resources of oil and gas. Therefore, there are many reasons behind the support of the fields of fundamental and applied physics by governments. One of them is the desire to benefit from the outcomes of these research fields such as publishing research papers in journals such as Nature and receiving the Nobel Prize. Although physics is one of the basic sciences, which may have no direct contributions to the national economy in some cases, it improves the general understanding of physics and its role in developing the industrial technologies related to it. There are several research institutes conducting their research in Physics with more focus on the research areas contributing directly to economy, such as the Institute for Basic Sciences in Korea. Besides, the physics laboratory in the National Institute for Standards and technology in the USA strives to improve methods in standards and metrology. The economic and social reflection of the research carried out in such institutes, shows the importance of investment in the field of physical science and its linkage to the development of the economical and social gain of these countries. One of the main goals of this program is to conduct research and the development of fundamental and applied physics and to link these fields via leading research projects in order to support physical science within the Kingdom of Saudi Arabia. Basic and applied physics research is also useful to enable the Kingdom to participate in international collaborations in some of the most advanced areas of science and technology.</p> <p>Economic reasons Research production and publications will better attract various sectors to support and benefit from the outcomes for the enhancement of their sectors and may be solving many related issues through sponsored research lines.</p> <p>Social Reasons M.Sc. Physics Program is just the first time to be offered for local community in the Jazan region. It will provide community with scientific expertise. The community and the university will gain skilled graduates to serve in occupations relevant to higher levels of Physics. Improve local youth population chances for good job opportunity in Physics related centers and other sectors that need to include skilled physicists.</p>		
4. System of Study		
<input checked="" type="checkbox"/> Coursework & Thesis <input type="checkbox"/> Coursework		
5. Mode of Study		
<input checked="" type="checkbox"/> On Campus <input type="checkbox"/> Distance Education <input type="checkbox"/> Others		
6. Educational and Research Partnerships (if any) NON		
- Partnership Arrangement:	- Type of Partnership:	- Duration of Partnership:
7. Total Credit Hours for Completing the Program: (33 Credit Hours)		
8. Professional Occupations/Jobs:		
- Education sector (public and private)	- Research laboratories and research centers.	
- Industrial sector.	- Academic institutions as researchers and/or faculty members	
- Work as scientists and/or consultants in industrial sectors.		
9. Major Tracks/Pathways (if any): NON		
Major Track/Pathway	Credit Hours (For each track)	Professional Occupations/Jobs (For each track)
1.		
10. Intermediate Exit Points/Awarded Degree (if any): NON		
Intermediate Exit Points/Awarded Degree	Credit Hours	
1.		

B. Mission, Goals, and Learning Outcomes

1. Program Mission:

Physics Department Mission

Physics Program provides high quality education, research and innovation in the field of physics to contribute to the development of a dynamic society.

2. Program Goals:

Physics Department Goals

1. Provide distinct and high quality education and training for Bachelor of Physics.
2. Establish and maintain high-impact research infrastructure and environment in physics and related fields.
3. Provide an outstanding community service that contributes to the development of society.

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

The Physics Department mission and goals are consistent with the JU mission and goals as seen in Table 1-1, and Table 1-2.

Table 1-1: Alignment of Physics Program Mission with JU Mission

Program Mission JU Mission	High quality education	High quality research	Innovation in Physics contribution to society
Teaching	√		
Research		√	
Innovation in society service			√

Table 1-2: Alignment of Physics Program Goals with JU Goals

Program Goals JU Goals	Goal. 1	Goal. 2	Goal. 3
Goal. 1	√	√	
Goal. 2		√	
Goal. 3			
Goal. 4		√	√
Goal. 5		√	
Goal. 6		√	
Goal. 7			√
Goal. 8			
Goal. 9		√	√
Goal. 10	√	√	
Goal. 11	√	√	
Goal. 12		√	√
Goal. 13		√	

As well as Physics Department mission and goals are consistent with the Science mission and goals as seen in Table 1-3, and Table 1-4.

Table 1-3: Alignment of Physics Program Mission with Science Mission

Program Mission Science Mission	High quality education	High quality research	Innovation in Physics contribution to society
Distinguish Academic Programs	√		
Innovative Research		√	√
Requirements of Development and Community services			√

Table 1-4: Alignment of Physics Program Goals with Science Goals

Program Goals Science Goals	Goal. 1	Goal. 2	Goal. 3
Goal. 1	√	√	
Goal. 2		√	
Goal. 3			
Goal. 4		√	√
Goal. 5		√	
Goal. 6		√	
Goal. 7			√
Goal. 8			
Goal. 9		√	√
Goal. 10	√	√	

For JU mission and Goals click on the following links:

- <https://www.jazanu.edu.sa/en/university-history/vision-and-mission>

- <https://www.jazanu.edu.sa/sites/default/files/2021-12/vision-and-mission-of-jazan-university.pdf>

For Science College's mission and Goals click on the following link:

<https://www.jazanu.edu.sa/en/colleges/sci>

4. Graduate Attributes:

- ✦ **IN-DEPTH KNOWLEDGE OF PHYSICS:** A comprehensive and well-founded knowledge of Physics. An understanding of how other disciplines relate to it. An international perspective on the field of Physics.
- ✦ **EFFECTIVE COMMUNICATION:** The ability to collect, analyze and organize information and ideas and to convey those ideas clearly and fluently, in both written and spoken forms. The ability to interact effectively with others in order to work towards a common outcome. The ability to select and use the appropriate level, style and means of communication. The ability to engage effectively and appropriately with information and communication technologies.
- ✦ **INDEPENDENCE AND CREATIVITY:** The ability to work and learn independently. The ability to generate ideas and adapt innovatively to changing environments. The ability to identify problems, create solutions, innovate and improve current practices.
- ✦ **CRITICAL JUDGEMENT:** The ability to define and analyze problems. The ability to apply critical reasoning to issues through independent thought and informed judgment. The ability to evaluate opinions, make decisions and to reflect critically on the justifications for decisions.
- ✦ **ETHICAL AND SOCIAL UNDERSTANDING:** An understanding of social and civic responsibility. An appreciation of the philosophical and social contexts of a discipline. A knowledge and respect of ethics and ethical standards. Knowledge of other cultures and times and an appreciation of cultural diversity.

5. Program Learning Outcomes*

Knowledge and Understanding

Graduates will be able to:

K1	Recall various physics concepts and theories.
K2	Discuss the scientific phenomenon covering theories, principles, and concepts in different physics fields.

Skills

Graduates will be able to:

S1	Drive and analyze different physics concepts and theories using the mathematical and analytical concepts.
S2	Solve problems in different physics disciplines.
S3	Assess the ability of the critical thinking when dealing with results against theories.
S4	Apply specialized theories, principles, and concepts in advanced contexts, and in a disciplines related to laboratory experiments and to selected research topic or field in Physics.

Values, Autonomy and Responsibility

Graduates will be able to:

Values and Ethics	V1	Illustrate the awareness of safety and ethics when dealing with various materials and equipments.
Autonomy and Responsibility	V2	Apply practices of life-long learning in various physics topics and scientific disciplines.
	V3	Demonstrate abilities of team work, bear individual responsibilities on assigned tasks.

* Add a table for each track or Exit Points/Awarded Degree (if any)

C. Curriculum

1. Study Plan Structure

Program Structure		No. of Courses	Credit Hours	Percentage
Course	Required	6	18	54.5%
	Elective	3	9	27.3%
Graduation Project (if any)		-	-	-
Thesis (if any)		1	6	18.2%
Field Experience(if any)		-	-	-
Others (.....)		-	-	-
Total		10	33	100%

* Add a table for each track (if any)

2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	600PHYS	Mathematical Physics	Required	---	3
	601PHYS	Classical Physics	Required	---	3
	602PHYS	Classical Electrodynamics	Required	---	3
Level 2	603PHYS	Quantum Mechanics	Required	---	3
	604PHYS	Statistical Physics	Required	---	3
	6xxPHYS	Elective Course 1	Elective	---	3
Level 3	6xxPHYS	Elective Course 2	Elective	---	3
	6xxPHYS	Elective Course 3	Elective	---	3
	695PHYS	Research Seminar	Required	---	3
Level 4	699PHYS	Thesis	Required	---	6

I. Required Courses (15 Credits)

Course title	Course Code	Credit Hours
Mathematical Physics	600PHYS	3
Classical Physics	601PHYS	3
Classical Electrodynamics	602PHYS	3
Quantum Mechanics	603PHYS	3
Mathematical Physics	604PHYS	3

II. Elective Courses (9 Credits):

Three courses (3) have to be chosen by the students from list below according to the specialization and under the suggestion of their supervisors.

Course title	Course Code	Credit Hours
Computational Physics	610PHYS	3
Physics Laboratory	611PHYS	3
Atomic and Molecular Spectroscopy	620PHYS	3
Quantum Optics	621PHYS	3
Plasma Physics	622PHYS	3
Solid State Physics	640PHYS	3
Materials Science	641PHYS	3
Magnetism and Superconductivity	642PHYS	3
Nuclear Structure and Spectroscopy	650PHYS	3
Radiation Physics	651PHYS	3
Quantum Field Theory	660PHYS	3
Particle Physics	661PHYS	3
Selected Topics in Specialised Physics	665 PHYS	3

III. Research Seminar and thesis (9 Credits):

Course title	Course Code	Credit Hours
Research Seminar	695 PHYS	3
Thesis	699PHYS	6

3. Course Specifications

Insert hyperlink for all course specifications using NCAAA template

<http://colleges.jazanu.edu.sa/sci/physics/Pages/QU-CRCS.aspx>

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 Name & Code		Program Learning Outcomes								
		Knowledge and Understanding		Skills				Values, Autonomy and Responsibility		
		K1	K2	S1	S2	S3	S4	V1	V2	V3
Mathematical Physics	600PHYS	M	M	M	M	M	M		M	M
Classical Physics	601PHYS	M	M	M	M	M	M		M	M
Classical Electrodynamics	602PHYS	M	M	M	M	M	M		M	M
Quantum Mechanics	603PHYS	M	M	M	M	M	M		M	M
Mathematical Physics	604PHYS	M	M	M	M	M	M		M	M
Computational Physics	610PHYS	M	M	M	M	M	M			M
Physics Laboratory	611PHYS	M	M	M	M	M	M		M	M
Atomic and Molecular Spectroscopy	620PHYS	M	M	M	M	M	M	M	M	M
Quantum Optics	621PHYS	M	M	M	M	M	M		M	M
Plasma Physics	622PHYS	M	M	M	M	M	M		M	M
Solid State Physics	640PHYS	M	M	M	M	M	M		M	M
Materials Science	641PHYS	M	M	M	M	M	M		M	M
Magnetism and Superconductivity	642PHYS	M	M	M	M	M	M	M	M	M
Nuclear Structure and Spectroscopy	650PHYS	M	M	M	M	M	M	M	M	M
Radiation Physics	651PHYS	M	M	M	M	M	M		M	M
Quantum Field Theory	660PHYS	M	M	M	M	M	M	M	M	M
Particle Physics	661PHYS	M	M	M	M	M	M			M
Selected Topics in Specialised Physics	665 PHYS	M	M	M	M	M	M			M
Research Seminar	695PHYS	M	M	M	M	M	M		M	M
Thesis	699PHYS	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	Teaching Strategies
Knowledge and Understanding		
K1	Recall various physics concepts and theories.	Lectures, Tutorials, Seminars, and Interactive Discussions.
K2	Discuss the scientific phenomenon covering theories, principles, and concepts in different physics fields.	
Skills		
S1	Drive and analyze different physics concepts and theories using the mathematical and analytical concepts.	Lectures, Discussions Expository and discovery Teaching
S2	Solve problems in different physics disciplines.	Lectures, Problem based Teaching and Interactive Discussions
S3	Assess the ability of the critical thinking when dealing with results against theories.	Lectures, Problem based Teaching and Interactive Discussions
S4	Apply specialized theories, principles, and concepts in advanced contexts, and in a disciplines related to laboratory experiments and to selected research topic or field in Physics.	Hands - on Practice, Expository and discovery Teaching, and Interactive discussions.
Values, Autonomy and Responsibility		
V1	Illustrate the awareness of safety and ethics when dealing with various materials and equipments.	Hands -on practice, Expository and Discovery m and Guided Discovery Teaching
V2	Apply practices of life-long learning in various physics topics and scientific disciplines.	Expository and Discovery, and Interactive Discussions.
V3	Demonstrate abilities of team work, bear individual responsibilities on assigned tasks.	Expository and discovery , and Interactive Discussions.

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.

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 kind of assessment question 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.

The following are some of the practiced rubrics

Problem solving -Essay questions - Derivation and formulation - Presentation – Communication - Lab reports - Group work in lab and assignments - Evaluation of project work by supervisor and referee -Project report.

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 every semester for evaluation of student experience (EES) in (6th level) and program evaluation survey (PES) in (8th level)
- ✚ Faculty member's opinions are also taken through a Faculty Members satisfaction Survey (annually).
- ✚ Another important survey is currently planned known as Exit Survey with which the expected graduate students will be target to specifically assess the Program Learning Outcomes and get a solid reflection on the gained knowledge, skills and competence.
- ✚ 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 survey for satisfactory achievements.

D. Thesis and Its Requirements (if any)

1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

- ✚ The graduate studies student shall submit her/his proposal, if any, to the Department after she/he fulfills the admission requirements and passes at least fifty percent of the courses with a cumulative GPS of 'Very Good' or better. 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, while those selected for a Doctoral Degree should be creative and innovative with a noticeable contribution in enhancing the field of knowledge related to the student's specialty.
- ✚ Master's dissertations are written in Arabic and can be written in other languages in some fields according to University Council resolution 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.

2. Scientific Supervision

(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/ mechanisms of the scientific supervision and follow-up)

- ✚ 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 appointment 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 in order 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.

3. Thesis Defense/Examination:

(The regulations for selection of the defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense and approval of the thesis, and criteria for evaluation of the thesis)

- I. The examination board is formed by the resolution of the Deanship of Graduate Studies Council based on the recommendations of the Department and College Councils.
- II. The Master's examination board should fulfill the following:
 1. An odd number of examiners shall be selected, provided the supervisor is the secretariat.
 2. The minimum number of examiners is three provided that the supervisor and the co-supervisor, if any, do not constitute a majority.
 3. The board members are subject to the requirements of dissertation supervision.
 4. A professor, or at least an associate professor, should be on the examination board.
 5. Resolutions are taken upon the approval of at least two thirds of the board members.
- III. If the dissertation supervisor fails to be among the examination board due to her/his death, service termination, or on a long period mission abroad, the Department shall propose a substitute approved by the College and the Deanship of Graduate Studies Councils.
- IV. 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:
 1. Accepting the dissertation and recommending the degree award.
 2. Accepting the dissertation and suggesting some changes without being re-examined. One of the examination board members shall be assigned to award the degree provided that the corrections are made

within a maximum period of three months from the examination date; the University Council is entitled to make exceptions.

3. Re-examining the dissertation after the corrections are made within a period specified by the Council of the Deanship of Graduate Studies based on the Department Council recommendation. The maximum time period is one year from the examination date.
 4. Not accepting the dissertation. Each examiner is entitled to make reservations and state her/his contradictory view point in a detailed report submitted to the Department Chairperson and the Dean of Graduate Studies within two weeks from the examination date.
- V.** The Department Chairperson shall submit the report of the examination board to the Dean of Graduate Studies within a minimum time period of three weeks from the examination date.
- VI.** Recommendation of degree award shall be submitted by the Dean of to the University Council to decide on the matter.

E. Student Admission and Support:

1. Student Admission and Transfer Requirements, and Courses Equivalency

- I.** 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.
- II.** 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. To study full time if the applicant is a doctorate candidate and the University Council may waive this requirement if necessary.
 7. B.Sc. Grade (3.75 or higher)
 8. English language proficiency (TOEFL 400)
 9. Interview (Pass)
- III.** For admission to Graduate Studies program for a Master's Degree, the final grade of the applicant in the university must be <Very Good> or better, but the Council of the Deanship of Graduate Studies may also accept applicants with grade <Above Average>. The Council of the Deanship of Graduate Studies, based on the Department Council recommendation and College Council approval, may accept applicants with grade <Good> in some programs specified by the University Council, provided that the applicant's average grade in the Bachelor's majoring courses is <Very Good> or better. 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.
- IV.** 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.
- V.** 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 in 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 time 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.

2. Student Counseling Services

(academic, career, psychological and social)

- ✚ 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 during on daily basis.
- ✚ Faculty should make a file for each student in his counseling group where student contact information, a copy of student timetable, a copy of student academic record are kept and updated every semester.

3. 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.

F. 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	8	All Physics specialties		4	4	8
Associate Professors	25	All Physics specialties		15	10	25
Assistant Professors	35	All Physics specialties		15	20	35
Technicians and Laboratory Assistants	16			4	12	16
Administrative and Supportive Staff	8			2	6	8
Others (specify)	4	Secretary		1	3	4

2. Professional Development

2.1 Orientation for New Teaching Staff

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

The orientation program for new teaching staff is held every time the department admits fresh members. The department Head presides over a welcoming session for new students attended by almost all the faculty members and administration staff. The Orientation program is to familiarize new teaching new staff with our learning environment and provide opportunities for professional development, networking and collegiality. Essential information needed to successfully teach at JU Topics may include communication systems, the learning environment, teaching spaces and policies, course coordination classroom challenges, understanding your students, authentic assessment, first years of teaching, delivering engaging lectures, online teaching, course design and lesson planning, etc. The orientation is held in the university, college then in the department as follow:

- ✚ University orientation day.
- ✚ New Faculty/Staff are welcomed at Faculty and Department level in a social annual meeting.
- ✚ College QA Unit Orientation Week.
- ✚ New Faculty/Staff undertake an Orientation Week (Lectures/Workshops) organized by the College QA Unit.

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.)

Academic staff is strongly supported in professional development in learning and teaching to promote good practices, innovation and scholarship in learning and teaching as well as curriculum development.

Quality Committee is one of the providers of staff professional development in learning and teaching to Faculty Members, consultation with academic staff about any development needs and the development of teaching portfolios.

Opportunities for professional development in teaching include:

- ✚ Alignment of learning and teaching with the specified learning Outcomes
- ✚ Effective teaching strategies
- ✚ Assessment of learning outcomes and their analysis
- ✚ KPIs analysis
- ✚ Benchmarking
- ✚ Rubric design and analysis
- ✚ Self-study

Moreover, Quality unit at college of science and Deanship of Academic development DAD at Jazan University provide all support and adopting initiatives that aim to enhance education quality, efficiency and effectiveness, eventually leading up to obtaining program and institutional accreditation from prestigious national/ international regulators. They conduct several Training and workshops each year.

<https://bc.jazanu.edu.sa/bc/>

G. Learning Resources, Facilities, and Equipment

1. Learning Resources.

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

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

- ✚ 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.
- ✚ The updated list of learning resources is then raised to College of Science Deanship and hence to Deanship for Library Affairs.
- ✚ Every year, the Head of physics department collects from faculty their need concerning the research

databases and he sends them to the library Deanship.

- ✚ The faculty and students have free accessibility to digital library where they can find various materials including textbooks, references, thesis and scientific journals.

2. Facilities and Equipment

Policies and Procedure for providing and quality assurance of Facilities and Equipment (Library, laboratories, medical facilities, classrooms, etc.).

Every year the physics department collects the equipments needed in all lab and sends the request to the Science College that in its turn send it to the JU equipment purchase administration.

✚ Library

College library is located in the 2nd floor. It contains books in sufficient number for all students in the college including physics students. Also, the central library in the university student may use beside the digital library of Saudi Arabia all students use their ID to enter its site

[http://deanships.jazanu.edu.sa/ layouts/Authenticate.aspx?Source=/lib/Pages/sdl.aspx](http://deanships.jazanu.edu.sa/layouts/Authenticate.aspx?Source=/lib/Pages/sdl.aspx)

✚ Textbooks and Course Materials

Wherever necessary, a scheduled course has a designated textbook, which has been adopted by the department. As all students registered in a course will have a copy of this book, an instructor may freely refer to the textbook as and when necessary. The adoption of a textbook does not restrict the instructor to use this book exclusively in his teaching and therefore he may freely adopt other references to supplement teaching material, which may include his own prepared lecture notes. Where there is no designated textbook, an instructor must rely on his own collection of materials and whenever necessary and appropriate, he should distribute the course materials to the students in his class. An instructor can propose a new textbook, either as a replacement for an existing one or as a new addition for a course where there is no designated textbook, by following the University's procedure, which requires approval of the department, the college and the University.

✚ Teaching Laboratories

The laboratories are well equipped with standard educational equipment. Multiple teaching laboratories serve students in all fields of Physics, including introductory courses and courses in Optics, Properties and Matter, Modern Physics, Atomic Physics, Solid State Physics and Nuclear Physics.

✚ Other Facilities

Physics Department offers to their students male and female a well-equipped infrastructure (classrooms, laboratories, library facilities, IT and audio-visual teaching materials, safety, first aids and consumables. There are several study open places in all floors, computer rooms, Sports activities Room, Cafeteria, theater and all other necessary premises.

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.

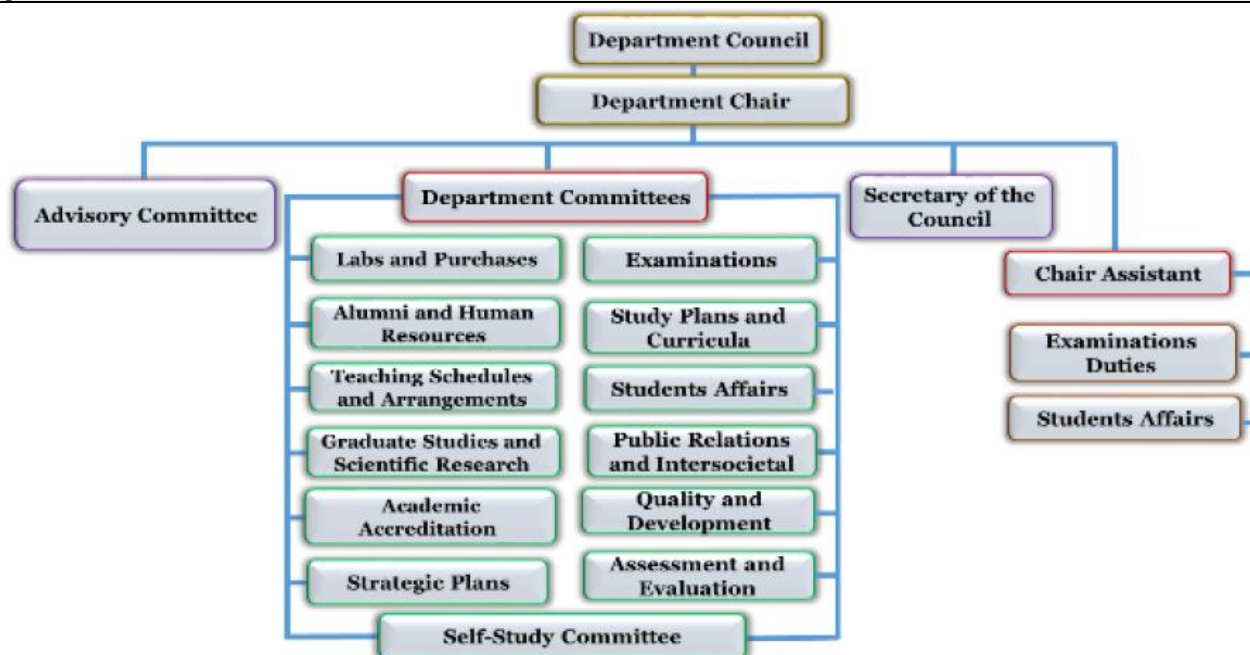
- ✚ The Campus Health Clinic is located inside the main campus and a small room over the medical support inside the College of Science building.
- ✚ Smoking is prohibited in any University facility and on any University grounds.
- ✚ First aids boxes are located in almost all rooms.
- ✚ The purpose of 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.

H. 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 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:

- ✦ 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 committees and contributed to program accreditation
- ✦ Periodic reviews of Physics 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.)

The following documentations for many regulations are set by Jazan University and **must be** applicable to all programs:

1. Definitions:

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/DefinitionsRegistrationandAdmission.aspx>

2. System of Study:

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/StudySystem.aspx>

3. **Attendance & Excuse for absence.**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/Attendanceandexcuseforabsence.aspx>

4. **Registration Reinstatement**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/RegistrationReinstatement.aspx>

5. **Affiliation**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/Affiliation.aspx>

6. **Examinations**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/Examinations.aspx>

7. **Visiting Student**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/VisitingStudentAdm.aspx>

8. **Appendices**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/Appendices.aspx>

9. **Admission of Freshman year students**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/AdmissionofFreshmanyearstudents.aspx>

10. **System of Levels**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/SystemofLevels.aspx>

11. **Postponement and Dropout from study**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/Postponementanddropout.aspx>

12. **Graduation**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/GraduationAdm.aspx>

13. **transferring from one University to Another**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/StudentTransferGuidelines.aspx>

14. **General Provisions**

<http://deanships.jazanu.edu.sa/sites/en/adm/Pages/GeneralProvisionsAdm.aspx>

15. **Implementation rules Jazan University (Arabic)**

http://deanships.jazanu.edu.sa/adm/PublishingImages/list_of_studies_and_tests_new.pdf

16. **Organization Regulations for Financial Affairs at the University (Arabic)**

http://deanships.jazanu.edu.sa/adm/PublishingImages/list_of_rewards_and_benefits_students.pdf

I. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

Link for OA manual

Planning; the process of setting goals, developing strategies, outlining the implementation arrangements and allocating resources to achieve those goals. It is important to note that planning involves looking at a number of different processes:

- ✦ Identifying the vision, goals or objectives to be achieved
- ✦ Formulating the strategies needed to achieve the vision and goals
- ✦ Determining and allocating the resources (financial and other) required to achieve the vision and goals
- ✦ Outlining implementation arrangements, which include the arrangements for monitoring and evaluating progress towards achieving the vision and goals

Review processes to support academic quality assurance should, ideally, be in place at different levels and cover specific issues:

- ✦ Quality is delivered through performance and improvement. This is the basic assumption of the system of quality assurance of teaching and learning.
- ✦ Performance is achieved by complying with the performance criteria derived from our mission and Policy.
- ✦ Improvement is achieved by continuously working towards improving the quality of teaching and learning throughout the department, while the performance criteria function as the touchstone of good quality. Improvements are monitored during the planning and control cycle.

2. Program Quality Monitoring Procedures

Monitoring; the ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives. Reviewing progress against achieving goals. Monitoring also involves tracking strategies and actions being taken by partners and non- partners, and figuring out what new strategies and actions need to be taken to ensure progress towards the most important results.

Evaluation, is a rigorous and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to decision making. Evaluations, like monitoring, can apply to many things, including an activity, project, program, strategy, policy, topic, theme, sector or organization.

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

Not Applicable (No Courses Taught by other Departments).

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.
- ✚ 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 indicating similarities and differences as well as overall performance.

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

Not Applicable

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

Link for Assessment Plan:

- ✚ Courses and programs are evaluated and reported on annually and reports include information about the effectiveness of planned strategies and the extent to which intended learning outcomes are being achieved.
- ✚ When changes are made as a result of evaluations details of those changes and the reasons for them will be retained in course and program portfolios.
- ✚ Quality indicators that include learning outcome measures were established for all courses and programs.
- ✚ Records of student completion rates are kept for all courses and for programs as a whole and included among quality indicators.
- ✚ Reports on programs are reviewed annually by program coordinator and quality committees.
- ✚ JU Edugate System is established for central recording and analysis of course completion and program progression and completion rates and student course and program evaluations, with summaries and comparative data distributed automatically to departments, colleges, senior administrators and relevant

committees at least once each year.

- ✚ Appropriate actions are taken to solve evaluations problems (if any) to make improvements, either within the program or through institutional action as appropriate.
- ✚ In addition to annual evaluations a comprehensive reassessment of the program will be conducted at least once every five years. Policies and procedures for conducting these reassessments are published within the program.
- ✚ Program reviews should involve experienced people from relevant industries and professions, and experienced faculty from other institutions.
- ✚ In program reviews opinions about the quality of the program including the extent to which intended learning outcomes are achieved will be sought from students and graduates through surveys and interviews, discussions with faculty, and other stakeholders such as employers.

7. 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, Employer	Surveys	End of academic year
Partnership	Employer	Survey	End of academic year
Learning resources	Employers	Survey, visits, interviews	End of academic 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 (3) year.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1	KPI-P-1	Percentage of achieved indicators of the program operational plan objectives		Percentage of the operational plan objectives of the program that achieved to the total number of indicators targeted for these objectives in the same year	End of the academic year
2	KPI- P-2	Students' Evaluation of quality of learning experience in the program.		The average ratings of all questions in program evaluation survey (PES)	End of semester
3	KPI- P-3	Students' evaluation of the quality of the courses.		The students' satisfaction with courses is assessed through surveys every semester. There is a mechanism to collect the surveys from students online and get the results directly.	End of semester
4	KPI- P-4	Completion rate		Proportion of undergraduate students who completed the program in minimum time in each cohort	End of semester and end of the academic year
5	KPI- P-5	First-year students retention rate		The percentage of first-year students who continue at the program the next year to the total number of first-year students in the same year	End of the academic year
6	KPI- P-6	Students' performance in the professional and/or national examinations	NA		
7	KPI- P-7	Graduates'		The percentage of graduates from the	End of the academic

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
				program who within a year of graduation were: (a) employed, (b) enrolled in postgraduate programs during the first year of their graduation to the total number of graduates in the same year	year
8	KPI- P-8	Average number of students in the class		The number of students in the class obtained from last absence records in the end of the semester	End of the Semester and End of the academic year
9	KPI- P-9	Employers' evaluation of the program graduates proficiency		The average of overall rating of employers for the proficiency of the program graduates on a five-point scale in an annual survey	End of the academic year
10	KPI- P-10	Students' satisfaction with the offered services		The average of students' satisfaction rate with the various services offered by the program on a five-point scale in an annual survey	End of the academic year
11	KPI- P-11	Ratio of students to teaching staff		Ratio of the total number of students to the total number of full-time and full-time equivalent teaching staff in the program	End of the academic year
12	KPI- P-12	Percentage of teaching staff distribution		The percentage of teaching staff distribution based on: (a)gender, and (b) academic ranking	End of the academic year
13	KPI- P-13	Proportion of teaching staff leaving the program		The proportion of teaching staff leaving the program annually for reasons other than age retirement to the total number of teaching staff	End of the academic year
14	KPI- P-14	Percentage of publications of faculty members		The percentage of full-time faculty members who published at least one research during the year to total faculty members in the program	End of the academic year
15	KPI- P-15	Rate of published research per faculty member		Total number of refereed and/or published research to the total number of full-time or equivalent faculty members during the year	End of the academic year
16	KPI- P-16	Citations rate in refereed journals per faculty member		Total number of citations in refereed journals from published research for full-time or equivalent faculty members to the total research published	End of the academic year
17	KPI- P-17	Satisfaction of beneficiaries with the learning resources		The average of beneficiaries satisfaction rate with the adequacy and diversity of learning resources (references, journals, databases... etc.) on a five-point scale in an annual survey	End of the academic year

* including KPIs required by NCAAA

j. Specification Approval Authority

Council / Committee	PHYSICS DEPT. COUNCIL
Reference No.	MEETING NO.
Date	.../.../2021 -/...../1443