Program Specification

(Bachelor)

Program:	**Bachelor of Science in Physics**
Program Code (as per Saudi university ranking):	**053301**
Qualification Level:	**Bachelor of Science (6th)**
Department:	Physics
College:	Science and Arts
Institution:	Najran University
Program Specification:	New ☐ updated* ☒
Last Review Date:	5/27/2024

*Attach the previous version of the Program Specification.

Table of Contents

A. Program Identification and General Information

1. Program's Main Location :
Main Campus of Najran University, - **College of Science and Arts building (13) (Male section)** - **College of Science and Arts building (27) (Female section)**
2. Branches Offering the Program (if any):
None
3. Partnerships with other parties (if any) and the nature of each:
None
4. Professions/jobs for which students are qualified
• **Demonstrator** • **Physicist** • **Research assistant**. • **Technician in (hospitals- Telecommunications Companies - Meteorology - Petroleum & Mining Companies - General Organization for Standardization and Metrology).**
5. Relevant occupational/ Professional sectors:
• **Ministry of Education** • **Ministry of Energy** • **Ministry of Health** • **Ministry of Environment, Water and Agriculture** • **Ministry of Industry and Mineral Resources** • **Nuclear and Radiological Regulatory Commission** • **Saudi Standards, Metrology and Quality Organization** • **Saline Water Conversion Corporation** • **National Center for Meteorology** • **Telecommunications Companies**

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

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1.		

7. Exit Points/Awarded Degree (if any): **(N.A)**

exit points/awarded degree	Credit hours
1.	

8. Total credit hours: (134h)

B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:
To prepare qualified graduates with laboratory and academic skills in physics that meets the requirements of the community.

2. Program Goals:
1- Introduce to the student the main branches of physics. 2- Help the student to understand the principles of physics 3- Provide the student with a solid foundation for a successful career that has the skills to continue his higher education. 4- Offer to the student the opportunity to study some of the advanced concepts and techniques of physics 5- Enable the student to develop skills in problem solving and critical and quantitative analysis and laboratory skills in physics. 6- Enable the student to develop skills in personal organization and teamwork.

3. Program Learning Outcomes*	
Knowledge and Understanding	
K1	Understanding of the fundamentals of physics branches such as, electromagnetism, optics, quantum and classical mechanics, relativity, statistical physics and thermodynamics, wave phenomena and the properties of matter.
K2	Knowing the mathematical methods for physicists.
K3	Discussing some topics in physics deeply and link them to the current evolution in physics.
K4	Knowing and understanding the scientific research methodology, and methods of investigation in physics.
Skills	
S1	Applying the main principles to particular areas. These include nuclear and particle physics, condensed matter physics, lasers and atomic structure.
S2	Students should be able to formulate and treat problems in physics to arrive at a solution.
S3	Students can use mathematics to deal with physical phenomena, and comparing the obtained results with experiments and observations.
S4	Students gain the ability to plan, execute, analyze data, and report the results of an experiment
S5	Students communicate effectively by listening carefully, presenting information in a clear and concise manner, orally and written, as well as using information technology for communication.

Values, Autonomy, and Responsibility	
V1	Shows respect for academic ethics, works to participate in finding constructive solutions to some societal issues, and is committed to responsible citizenship.
V2	Students should be able to work independently as well as work in groups, interacting constructively with others.
V3	To have the ability to self-assess the level of learning and performance, insist on achievement and excellence, and make rational decisions supported by evidence and arguments independently.

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

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	6	12	9%
	Elective			
College Requirements	Required	6	21	15.7%
	Elective			
Program Requirements	Required	29	92	68.6%
	Elective			
Capstone Course/Project		1	3	2.2 %
Field Training/ Internship		N.A		
Residency year				
Others **(Program Requirements -from mathematics)**		2	6	4.5%
Total		44	134	100

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

2. Program Courses

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	**102phis-3**	**General Physics 1**	**Required**	-	**3**	**Department**
	151 phis-3	**Principles of mathematical physics**	**Required**	-	**3**	**Department**
	101 math-4	**Calculus I**	**Required**	-	**4**	**College**
	102ENG-3	**Linguistic Texts**	**Required**	-	**3**	**College**
	201Arab-2	**Arabic Language Skills**	**Required**	-	**2**	**Institution**
	111 Isl-2	**Introduction to Islamic Culture 1**	**Required**	-	**2**	**Institution**
Level 2	**103phis-3**	**General Physics 2**	**Required**	-	**3**	**Department**
	112 math-3	**Calculus II**	**Required**	**101 math-4**	**3**	**Department**
	101BIOL-4	**General Biology**	**Required**	-	**4**	**College**
	101Chm-4	**General Chemistry**	**Required**	-	**4**	**College**
	202Arab-2	**Arabic Writing**	**Required**	-	**2**	**Institution**
	112 Isl-2	**Islamic Culture 2**	**Required**	-	**2**	**Institution**
Level 3	252 phis-3	Mathematical physics1	Required	101 math-4	**3**	Department
	211phis-3	Mechanics I	Required	101math-4	**3**	Department
	231 Phis-4	Electricity and magnetism 1	Required	103phis-2	**4**	Department
	213 math-3	Calculus III	Required	112 math-3	**3**	Department
	101cs-3	computer	Required	-	**3**	College
	113 Isl-2	Islamic Culture 3	Required	-	**2**	Institution
Level 4	**241Phis-4**	**Heat and thermodynamics**	**Required**	**102phis-2**	**4**	**Department**
	221phis-4	**Waves and vibrations**	**Required**	**103phis-3**	**4**	**Department**
	253 phis-3	**Mathematical physics2**	**Required**	**252phis-3**	**3**	**Department**
	212phis-3	**Mechanics 2**	**Required**	**211phis-3**	**3**	**Department**
	114 Isl-2	**Islamic Culture 4**	**Required**	-	**2**	**Institution**
Level 5	**361phis-3**	**Modern physics**	**Required**		**3**	**Department**
	322phis-4	**Optics**	**Required**		**4**	**Department**
	333Phis-4	**Electricity and magnetism 2**	**Required**	**231 Phis-4**	**4**	**Department**
	313phis-2	**Special relativity**	**Required**	**212phis-3**	**2**	**Department**
	332phis-2	**Electronics 1**	**Required**	**231 Phis-4**	**2**	**Department**
Level 6	334phis-3	Electronics 2	Required	332phis-2	**3**	Department
	342phis-3	Statistical physics	Required	241phis-4, 253phis-3	**3**	Department
	314phis-3	Fluid Mechanics	Required	-	**3**	Department
	315phis-3	Quantum mechanics 1	Required	253phis-3, 361phis-3	**3**	Department
	335phis-3	Electromagnetic theory 1	Required	333phis-4	**3**	Department
	301edu-3	Thinking and communication skills	Required	-	**3**	College
Level 7	**471phis-4**	**Solid state physics 1**	**Required**	**315phis-3**	**4**	**Department**
	472phis-4	**Nuclear physics 1**	**Required**	**315phis-3**	**4**	**Department**
	416phis-3	**Quantum mechanics 2**	**Required**	**315phis-3**	**3**	**Department**
	436phis-3	**Electromagnetic theory 2**	**Required**	**335phis-3**	**3**	**Department**
	462phis-3	**Atomic physics and spectroscopy**	**Required**	**361phis-4**	**3**	**Department**
Level 8	**473phis-4**	**Solid state physics 2**	**Required**	**471phis-4**	**4**	**Department**
	474phis-4	**Nuclear physics 2**	**Required**	**472phis-4**	**4**	**Department**
	423phis-2	**Laser physics**	**Required**	**361phis-3**	**2**	**Department**
	481phis-2	**Special topics**	**Required**	-	**2**	**Department**
	482phis-3	**Project**	**Required**	-	**3**	**Department**

* Include additional levels (for three semesters option or if needed).
** Add a table for the courses of each track (if any)

3. Course Specifications:

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

Courses Specification V2023

4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with program courses, according to the following desired levels of performance *(I = Introduced & P = Practiced & M = Mastered).*

Course code & No.	Program Learning Outcomes											
	Knowledge and understanding				Skills					Values, Autonomy, and Responsibility		
	K1	K2	K3	K4	S1	S2	S3	S4	S5	V1	V2	V3
General Physics 1	I						I				I	I
Principles of mathematical physics		I				I	I					I
General Physics 2	I						I				I	I
Mathematical physics1		P				P	P				I	
Mechanics I	I		I				I			I		
Electricity and magnetism 1	I							I			I	I
Heat and thermodynamics	I							I			I	I
Waves and vibrations	I						I				I	I
Mathematical physics2		P				M	M				I	
Mechanics 2	P		P				P					I
Modern physics			P				P				P	P
Optics	P							P			P	P
Electricity and magnetism 2	P						P				P	
Special relativity	P		P				P					
Electronics 1	P				P		P				P	
Electronics 2			P					P			P	P
Fluid Mechanics	P	P				M					P	
Statistical physics		M	P			M	M					P
Quantum mechanics 1	M	M	P			M						P
Electromagnetic theory 1		M	P			P				P		
Solid state physics 1			P		P		M				P	P
Nuclear physics 1			P		P		M				P	P
Quantum mechanics 2	M	M	M			M						P
Electromagnetic theory 2		M	M		M						P	
Atomic physics and spectroscopy	M		M		M					M		
Solid state physics 2			M		M			M	M		M	M
Nuclear physics 2			M		M			M	M		M	M
Laser physics	M		M		M							
Special topics	M			M		M					M	
Project				M	M				M	M		M

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

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

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

PLOs	Teaching and Learning Strategies
Knowledge and understanding	1- Lectures: Traditional lectures can be used to introduce key concepts, theories, and principles in physics. Lectures provide a structured format for delivering information to students. 2- Problem-solving exercises and practice problems to reinforce understanding of key physics' principles. 3- Group Discussions: Group Discussions encourage active learning and help students develop their communication and argumentation skills. Students can engage in discussions on complex physics topics, present different viewpoints, and support their arguments with evidence. 4- Simulations & Virtual Laboratories: Virtual laboratories provide opportunities for students to explore physics phenomena in a virtual environment. These interactive tools allow students to manipulate variables, observe outcomes, and gain hands-on experience in a safe and controlled setting. 5- Research Projects: Engaging students in research projects allows them to delve deeper into specific areas of physics. 6- Summarizing lectures: Summarizing lectures involves condensing the information presented in a lecture into concise and organized summaries. This strategy helps students review and reinforce their understanding of the main ideas, key concepts, and supporting details covered in the lecture. 7- Tutorials: Tutorials provide a supportive and interactive environment for students to engage in problem-solving, discussions, and peer learning. They allow students to deepen their understanding of concepts, receive immediate feedback, and apply their knowledge in different contexts.

	Extra-curricular activities: 1- Small group assignments are collaborative projects where students work together in small teams. 2- Writing reports is an extra-curricular activity that involves researching a topic, gathering relevant information, and composing a formal written document to communicate findings, analysis, and conclusions.
Skills	1- Labs and Practical Work: Hands-on lab experiments allow students to apply physics concepts and theories in a real-world setting. 2- Small Group Lab Training: Students work collaboratively in small teams during lab sessions. Encourages peer-to-peer learning and deepens conceptual understanding through discussion. 3- Group Discussions: Interactive group discussions on physics topics and research cultivates oral communication, presentation, and argumentation abilities and promotes critical thinking as students evaluate different perspectives and build on each other's ideas. 4- Research Projects: Independent or group-based research projects on physics-related topics develops skills in literature review, hypothesis formation, experimental design, and scientific writing provides experience with the full research lifecycle, mirroring professional scientific work. 5- Lab Demonstrations: Instructor-led demonstrations of physics phenomena and experimental setups allows students to observe principles in action and builds visual-spatial understanding. 6- Tutorials: Supplementary problem-solving , either in-person or online reinforces core physics concepts and equations through guided practice and hones quantitative and mathematical skills essential for physics.
	Extra-curricular activities: 1- Writing reports, Student Competitions, using electronic resources for research and learning, Searching the internet, Using the library, Mind mapping

Values, Autonomy, and Responsibility	1- Group Activities (Lab, Discussions, Problem-Solving): Cultivates values of collaboration, teamwork, and mutual respect, develops autonomy and responsibility through shared decision-making, and fosters accountability as students rely on each other to achieve goals. 2- Brainstorming/Brain-Storming: Encourages creativity, open-mindedness, and diverse perspectives, promotes autonomous thinking as students generate and build on ideas, and instills responsibility to contribute meaningfully to the group process. Extra-curricular activities: **1-** Scientific Trips to Factories, Companies, or Institutions: Exposes students to real-world applications of physics, instilling a sense of the field's relevance and importance, promotes autonomy as students navigate unfamiliar environments and interact with professionals, and inspires responsibility to represent their institution and physics program positively. **2-** Student Competitions: Cultivates values of healthy competition, sportsmanship, and camaraderie, encourages autonomy as students take ownership of their project or event preparation, and fosters responsibility in meeting deadlines, securing resources, and delivering high-quality work. 3- Collecting Course Materials: Reinforces the value of being organized, thorough, and proactive in one's studies, develops autonomy as students take initiative to gather and manage their learning resources, and instills responsibility in maintaining a well-organized and comprehensive collection of course materials. 4- Research Projects: Reinforces the value of intellectual curiosity, diligence, and a commitment to expanding knowledge, develops autonomy through independent research, analysis, decision-making, instills responsibility in properly citing sources, adhering to ethical research practices, and effectively communicating findings. 5- Using the Library: Cultivates the value of accessing and utilizing credible, reliable information sources, promotes autonomy as students independently navigate library resources and services, fosters responsibility in properly attributing sources and respecting library policies and guidelines.

6. Assessment Methods for program learning outcomes.

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

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

PLOs	Direct Assessment Methods	Indirect Assessment Methods
Knowledge and understanding	1- Written Examinations and quizzes focused on fundamentals and concepts of physics. 2- Assignments and projects requiring the application of physics concepts to solve problems and analyze data. 3- Oral exams or presentations	1- Surveys and questionnaires to assess students' perception of their knowledge and understanding of Physics. 2- Course evaluations and feedback forms to gather students' opinions on the effectiveness of instruction in developing knowledge and understanding.
Skills	1- Examinations and Tests: • Written exams (problem-solving) • Laboratory practical exams to assess experimental skills 2- Problem-solving assessments to evaluate students' ability to solve and applied physical problems. 3- Assignments and exams in formulating and treating problems physics mathematically	1- Surveys and questionnaires to assess students' perception of their skills of Physics. 2- Course evaluations and feedback forms to gather students' opinions on the

	4- Problem-Solving and Mathematical Skills: • Graded problem-solving assignments and exams • Observation of students' problem-solving approaches during class activities.	effectiveness of instruction in developing their skills.
	5- Technical Communication Skills: • Evaluation of students' written reports, and technical documents • Assessment of oral presentations, including the clarity of explanations and use of visual aids	
	6- Collaborative and Teamwork Skills: • Observation of students' contributions and dynamics within group projects or lab activities	
	7- Data Analysis and Interpretation Skills: • Evaluation of students' ability to analyze experimental data, identify trends, and draw appropriate conclusions • Assessment of data visualization and presentation skills	
Values, Autonomy, and Responsibility	1- Written Examinations, Presentations, writing report for laboratory work.	1-Surveys and questionnaires
	2- Collaborative and Teamwork Skills: • Instructor assessment of students' ability to work effectively in teams	

	3- Autonomy: • Evaluation of students' independent in projects, including their ability to define questions, design experiments, and interpret results • Assessment of students' initiative in seeking out additional resources, attending office hours, and pursuing extracurricular opportunities • Observation of students' self-directed learning during problem-solving sessions, lab work, and discussions	
	4- Responsibility: • Evaluation of students' timely submission of assignments, and lab reports. • Observation of students' preparedness, attendance, and active participation in class and lab activities • Assessment of students' ability to manage their time, meet deadlines, and take ownership of their learning	

D. Student Admission and Support:

1. Student Admission Requirements

https://www.nu.edu.sa/en/web/deanship-of-admission-and-registration/33

1- The applicant must hold a Saudi nationality or be born of a Saudi mother.

2- The student should hold a general Saudi secondary school (high school) certificate or its equivalent from within Saudi Arabia or from other countries.

3- He/she should have obtained the secondary school certificate in a period of less than 5 years prior to the date of application; and the Rector has the authority to exclude in case of convincing reasons.

4- He/she should pass any aptitude exam or interview.

5- He/she must have a record of good reputation and behavior.
6- Being physically fit.
7- He/she must obtain the approval of his/her employer in case of being employee in government or private agency.
8- He/she should satisfy other conditions stipulated and announced by the NU Board at the time of application.
9- The applicant is not holder of a bachelor degree from another university.
10- The student should not have been dismissed from any other university for disciplinary or academic reasons

2. Guidance and Orientation Programs for New Students

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

In the first week of the academic semester, a welcome and an orientation meeting is held for the newly admitted students to welcome them and make them aware of all university regulations, students' admission, absence, and grades system, and discuss the principles of academic counseling and support. In addition, the academic advisor of the program represents to the student the program manual to be aware of the program facilities, laboratories, and teaching staff.

3. Student Counseling Services

(Academic, professional, psychological and social)
(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

- 10 hours (office hours) available for student advising per week.
- There is a general academic advisor for the department.
- There is an academic advisor for each student. Every teaching staff is advised to orient his/her students to think of building their own projects and to learn how to make marketing for their projects.
- The supervisor is required to help the student through advising, providing references if possible, and correction.

- As for psychological and social counselling, the student is oriented to an online psychological and social counselling by psychiatrists that available for all students (**https://www.nu.edu.sa/web/ershad**).
- There is a public box for all students' complaints and suggestions; feedback is to be given regarding such complaints and suggestions. The word "feedback" here means that students' complaints have been referred to the concerned official and solved; they are divided into different types of complaints regarding facilities and equipment, timetables, campus services and academic achievement, etc."
- There are many training workshops scheduled to be held, aiming at how to write a good CV, how to market their achievements, how to attract customers, and how to manage small projects. The orientation program aims not to fully depend on governmental jobs.

4. Special Support

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

For low achievers and disabled:

- To give them clear, gradually instructions.
- To be ready to give them extra help or explanation in office hours.
- To be aware of their learning or studying habits and try to improve them.
- Make professional and fair judgments about your students' performance.
- Never give a passing mark to the learner who does not deserve it.
- The program does not accept students with physical disabilities (such as the deaf, the blind, ...) that are not appropriate for practical courses

For gifted and talented:

- The top students are counted according to the GPA
- The academic advisor follows up the mentors and guides them in a way that achieves their excellence.
- The outstanding students in the program are honored at the college honoring ceremony.
- A tribute plate is created for outstanding students
- The activity officer in the department invites talented students to join the college's various activities
- Activities (sports, cultural and ....) are organized for gifted students

E. Faculty and Administrative Staff:

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor	5 (Physics)	-Solid state -Nuclear physics -Theoretical physics - spectroscopy -material science		3	2	5
Associate Professor	10 (Physics)	-Solid state -Nuclear physics -Theoretical physics - spectroscopy -material science		5	5	10
Assistant Professor	15 (Physics)	Solid state -Nuclear physics -Theoretical physics - spectroscopy -material science		8	7	15
Lecturer	18 (Physics)	Physics		9	9	1

Teaching Assistant	24 (Physics)	Physics		12	12	24
Technicians and Laboratory Assistant	8 (Technicians) 16(Laboratory Assistant)	-		12	12	24
Administrative and Supportive Staff	**6**	**-**		**3**	**3**	**6**
Others (specify)						

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

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

1. The staff members suggested reference and text books in the course specification
2. Physics references and text book selecting committee
3. Physics laboratories committee
4. Council of Physics Department approval

In addition, The University provides:

1. library resources, including e-books, on-line journals and databases, which are comprehensive and up-to-date; together with assistance from Library staff to enable you to make the best use of these resources
2. High-speed access to online electronic learning resources on the Internet from your own devices; laptops, smartphones and tablet PCs via wireless network.
3. There is a wide range of application software available for the Student.
4. Computer accounts, which will connect you to a number of learning technologies for example, the Blackboard
5. Standard ICT tools such as Email and OneDrive for cloud storage.
6. Access to key information through the Student Academic Portal, which delivers timetables, Module information, Locations, etc.

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

1. Central Library provides textbooks and electronic books.
2. Internet service is available at no cost in the University.
3. The Saudi digital library (SDL) is available at no cost in the University.
4. The digital library for the deanship of libraries is available for free in the University

3. Procedures to ensure a healthy and safe learning environment

(According to the nature of the program)

The programme follows the University's regulations for Maintain a Healthy and Safe Environment via "General Department for Support Services" https://www.nu.edu.sa/en/web/department-of-employment/structure.
That provides several services for instance:
Classrooms and laboratories are equipped with:

- Extinguishers
- Fire alarms
- first aid kit
- Safety and security signs

G. Program Quality Assurance:

1. Program Quality Assurance System

Provide a link to quality assurance manual.

. Program Quality Assurance System

All colleges of Najran University receive the assistance required for quality management from the deanship of development and quality, which is also in charge of assessing and monitoring the accomplishment of the Plan and Activities of the quality Unit. On a regular basis, the quality Plan's accomplishment is evaluated.

Annual program report: In a formal meeting of the department council, the annual program report—which includes all data and information about the program's quality and suggested improvement actions are discussed. Moreover, the department head and teaching and learning unit then monitor the application of the suggested corrective actions and improvement activities.

Course reports: The course coordinators assess their own performance, consider how the courses have gone, and make suggestions for improvements going forward. Program council receives reports from course coordinators. Using the Course Evaluation Survey, which asks students for their opinions on the course's quality in light of a variety of factors, all courses have been evaluated.

A comprehensive evaluation in a cycle of four years, the program is thoroughly evaluated, and a self-study report is created to request external review.
The improvement plan is created to address the advice and recommendations provided in the external review report.
Quality-Handbook-of-Najran-university

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

1. Students evaluation of the course, where students provide feedback on the quality of the course considering various aspects
2. Discuss the course reports, the course coordinators evaluate their own performance, reflect on how courses have proceeded and suggest plans for improvement. Course coordinators submit reports to program council.

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

1- The Physics Department Council rules the physics program for both male and female sections
2- A unified study plan for the male and female sections.
3- A unified program specification for both male and female sections.
4- Unified and approved course specifications for the study plan in the Physics program in the male and female sections.
5- Unification of scientific material and final examinations for both male and female sections.
6- Identifying the course coordinator for each course.

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

The program employs a multifaceted approach to assess program-learning outcomes. This includes a direct assessment-using course learning outcomes and the exit exam, as well as indirect methods such as exit surveys and interviews with stakeholders. Subsequently, the data of the assessment is interpreted to determine the degree of accomplishment of the outcomes.

The assessment, evaluation, and feedback processes for continuous program improvement follow the following three steps:

1- Gathering data, which they are either direct or indirect. Direct assessment typically involves course assessment and exit exam, while indirect assessment relies on surveys. This stage also encompasses the creation of survey forms and determine candidate courses to evaluate PLOs.

2- Check out the collected data and compared them against predetermined performance indicators, forming the evaluation procedures.

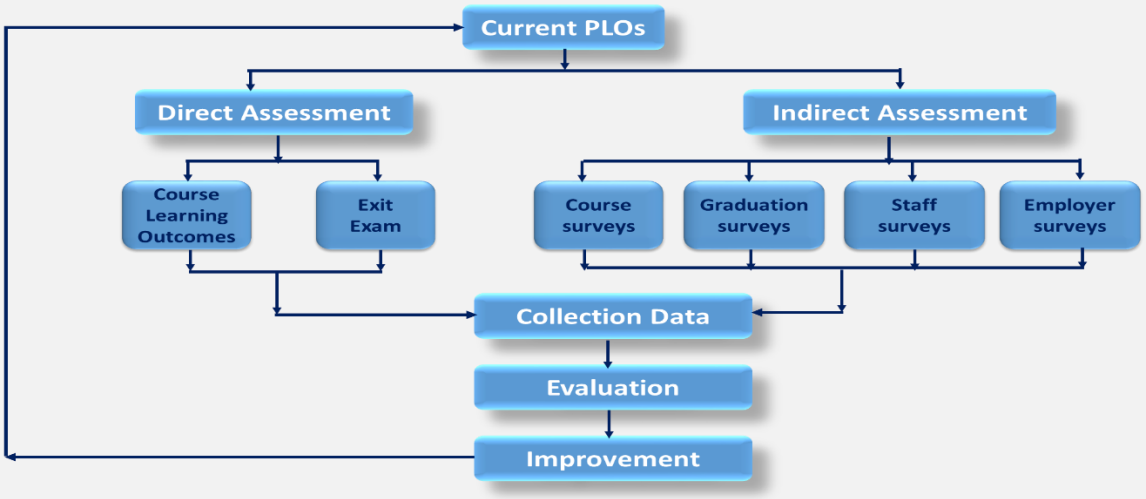
3- The continuous improvement techniques are motivated by the degree to which the evaluation results correspond with the established targets.

The findings from these assessments guide ongoing improvements over a four-year assessment cycle. Major program-level changes are then implemented at the conclusion of this cycle, as shown in the following table. The program learning outcomes undergo an annual assessment cycle. During this one-year cycle, all the PLOs are evaluated and continuous improvement actions and minor adjustments are made as necessary. If significant changes are needed, plans for their implementation are developed by the end of the assessment cycle. The timeline for data collection, results evaluation, and the implementation of improvements for each PLO is outlined in the following table.

PLO	Course that measure the PLOs	Time of measuring:	Method	Responsible of the assessment	Improvement plan
K.1	**Mechanics 2** **Electricity and magnetism 2** **Quantum mechanics 2** **Atomic physics and spectroscopy** **Laser physics**	by the end of semester	The following methods will be applied: - Questioner for students to evaluate PLOs - course report (CLOs).	Development and Quality Subcommittee responsible for teaching and learning standards	At the end of every academic year department council receives the report of PLOs and discusses the results then prepares an improvement plan based on the results of PLOs
K.2	**Mathematical physics2** **Electromagnetic theory 2** **Statistical physics**				
K.3	**Solid state physics 2** **Nuclear physics 2** **Laser physics**				
K.4	**Special topics** **Project**				
S.1	**Solid state physics 2** **Atomic physics and spectroscopy** **Laser physics**				
S.2	**Fluid Mechanics** **Quantum mechanics 2** **Statistical physics** **Special topics**				
S.3	**Mathematical physics2** **Statistical physics** **Solid state physics 1**				
S.4	**Solid state physics 2** **Nuclear physics 2** **Electronics 2**				
S.5	**Solid state physics 2** **Nuclear physics 2** **Project**				

V.1	**Electromagnetic theory 1** **Atomic physics and spectroscopy** **Project**				
V.2	**Solid state physics 2** **Nuclear physics 2** **Modern physics**				
V.3	**Solid state physics 2** **Nuclear physics 2** **Project**				

Figure Program Learning Outcomes Assessment



Assessment Method	Data Source	Evaluation official
Direct Assessment Method	Course Reports	Faculty Members
	Exit Exam Report	Quality Assurance Unit
Indirect Assessment Method	Course Survey	Faculty Members
	Program Surveys	Quality Assurance Unit
	Alumni Survey	Quality Assurance Unit
	Employer Survey	Quality Assurance Unit

5. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
leadership	- Faculty	-report	Annually
effectiveness of teaching & assessment	-Students -Academic staff -Program leaders	-questionnaires -course report -program report	Each semester
learning resources	-Students -Academic staff -Program leaders	-questionnaires -course report -program report	Annually
Overall Program evaluation	-Program leaders	-program reports	Each 5 years

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

6. Program KPIs*

The period to achieve the target (**One**) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-P-01	Percentage of achieved indicators of the program operational plan objectives	80%	Surveys & questionnaires	By the end of the semester
2	KPI-P-02	Students' Evaluation of quality of learning experience in the program	75%	Surveys & questionnaires	By the end of the semester
3	KPI-P-03	Students' evaluation of the quality of the courses	75%	Surveys & questionnaires	By the end of the semester
4	KPI-P-04	Completion rate	50%	Statistical data	By the end of the semester
5	KPI-P-05	First-year students retention rate	60%	Statistical data	By the end of the semester
6	KPI-P-06	Students' performance in the professional and/or national examinations	No less than 70%	Statistical data	By the end of the semester
7	KPI-P-07	Graduates' employability and enrolment in postgraduate programs	No less than 50 %	Statistical data	By the end of the semester
8	KPI-P-08	Average number of students in the class	Lecture: Not more than 25 Lab: not more than 15 Project: 2	Statistical data	By the end of the semester
9	KPI-P-09	Employers' evaluation of the program graduates proficiency	No less than 70%	Surveys & interviews	By the end of the semester
10	KPI-P-10	Students' satisfaction with the offered services	70%	Surveys & questionnaires	By the end of the semester
11	KPI-P-11	Ratio of students to teaching staff	25:1	Statistical data	By the end of the semester
12	KPI-P-12	Percentage of teaching staff distribution	50%:50% male to female 1:2:5:10 Prof: ass. Prof.: Ass. Prof.: lecturer and	Statistical data	By the end of the semester

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
			demonstrator.		
13	KPI-P-13	Proportion of teaching staff leaving the program	No more than 10%	Statistical data	By the end of the semester
14	KPI-P-14	Percentage of publications of faculty members	70% of PhD	Statistical data	By the end of the semester
15	KPI-P-15	Rate of published research per faculty member	1:1	Statistical data	By the end of the semester
16	KPI-P-16	Citations rate in refereed journals per faculty member	No less than 60% 0f published research	Statistical data	By the end of the semester
17	KPI-P-17	Satisfaction of beneficiaries with the learning resources	No less than 70%	Surveys & questionnaires	By the end of the semester

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	Session: The Seventeenth Session of the Physics Department Council - Second Semester 1445 AH
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