

About the Department of Physics

It is one of the most important departments in the Female College of Education of Zulfi, University of Al Majmaa'h. The department has contributed to the graduation of qualified executives to meet the needs of the labor market in the public education sector, institutions of higher education and scientific research centers. The department has been established in 1421 to teach theoretical and applied physics. In fact, physics is the most fascinating science because of its direct relation with the nature and the universe. It also gives us reasonable answers for our questions about what is happening around us. It is considered as one of the oldest sciences; it is concerned with the study of a very wide range of objects starting from quarks (which live inside the constituent particles of an atomic nucleus) and even galaxies, thus physicists find great pleasure in studying them, they also enjoy applying physical principles to solve the applied problems like the use of thin magnetic membranes characteristics to produce high speed computer memory chips in addition to its ability to provide deep details in order to understand everything starting from the elementary particles to the nucleus, molecules, living cells, the various types of materials whether solid, liquid, gaseous, or plasmatic and The human brain etc...

The most renowned scientists such as Einstein, Newton and Maxwell and Lorentz are physicists. Physicists are the most trained scientists in various fields such as mathematics, computer science, communications, satellites, etc., they are even sometimes better than their specialist peers since they are dealing with the applied aspect of these sciences. Furthermore, they break down the barriers between other Applied sciences like; biology, geology, medicine and engineering. The physicist doesn't find a difficulty in understanding any of the other various sciences. Notably, branches of sciences that combine physics and other disciplines have already appeared such as; physics, biophysics, Geophysics, medical physics and others.

Physics is required whenever there are new scientific applications or advanced devices and where there is technology, the physicist can find himself a job, and he is even more eligible to be chosen over others for his background knowledge and experience which qualify him to handle the fast development of technology. Studying physics requires also high knowledge of mathematics science. The science of physics is empowered by experience and proof on which it relies to reach the truth. The development of this science has led to the evolution of life on earth.

Physics is one of the most important sciences that studies the basic and applied features and which contributes to the development and progress of society through the graduation of scientifically qualified cadres who will effectively reinforce development and environmental conservation and protection. Physics Department has developed a program of study for undergraduate and selected in addition to general courses, a range of specialized courses to get acquainted with new field of knowledge through which the graduate can participate in the fields of modern technology and medicine.

The Department is interested in new technological developments in sciences as well as the teaching methods. It is also interested in the practical courses. As a result, the department has developed and renewed the scientific instruments used in such courses due to their importance

in making the student better understand the scientific matter on one hand, on the other hand, increasing practical efficiency and learning modern techniques.

What is physics?

Physics is the fundamental basis for the various fields of science. It gives the most deep details to understand everything from elementary particles to the nucleus, the atom, the molecules, living cells solid, liquid, gaseous and plasmatic (the fourth case of the material) substances, the human brain, complex systems, rapid computers, the atmosphere, planets, stars, galaxies and the universe itself. That is to say; physicists specialize in knowing the smallest element of this universe which are the elementary particles to the universe through the details that we have already mentioned.

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Vision of the Department:

The department aspires to be a leader in both the academic and educational terms on the local and regional levels. It also seeks the advancement of knowledge for the development of human society and reinforcement of the labor market with graduates armed with knowledge, skills and values that enable them to serve and build up the nation. The department also hopes to contribute to the consultative and training services, solve the scientific and industrial problems that face the development plans in the Kingdom and provide outstanding national cadres in the field of physics.

Message of the Department:

To train scientifically qualified cadres in the field of physics and its applications to serve the country in the educational sector or in any other areas of the labor market.

Department Objectives

1. To prepare female graduates armed with faith and science to meet the requirements of the labor market in the public educational and academic sector and all the other scientific and industrial establishments.
2. To scientifically prepare students to pursue their higher scientific studies and research in the different fields of physical sciences and their applications.
3. Provide the scientific and academic bodies in the Kingdom with high qualified female researchers to work in various research centers.
4. To encourage scientific research and authoring in various fields of physics.
5. To provide an outstanding level of scientific courses of physics and which are equivalent to the recent developments of this science.
6. Scientific communication with the similar universities at the local and regional level in order to exchange scientific and teaching experiences.
7. To provide an advanced level of education and teaching for Bachelors through maintaining a serious level of teaching materials, using distinguished approaches of teaching and continuously evaluating and developing the academic curriculum.
8. To intensely teach the student the basics of physic science and the principles of required analytical methods for the deduction of physical experiments.
9. To give the student the opportunity to deepen his knowledge of the branches of physics in order to get acquainted with the contemporary scientific research.
10. To train students on the methods of scientific research and enable him to contribute to it under the supervision of competent researchers.
11. To provide the student with in-depth knowledge of the extent of scientific maturity can participate effectively in the scientific and technical aspects of the development and planning programs.
12. To accomplish basic applied research and work on scientific, experimental, theoretical and applied researches.
13. To participate in the consultative and training services and short courses and solve scientific and industrial problems which face the development plans in the Kingdom.

The Department of Physics aspires to provide the best scientific methods in teaching the basic principles of both theoretical and experimental physics. It also tries to maintain a high level of educational and scientific research and community service, which is reflected positively upon the progress and prosperity of this beloved country.

The Study System of the department:

It is an annual system, the student studies for four years to get a Bachelor's degree in Science and Education.

The number of classes that have been graduating from the department so far

The number of graduate classes in this department since its establishment until this year (1432) is eight.

Structural development plan of the department

Concerning classrooms:

- *To equip classrooms with a normal big blackboard and a smart blackboard.
- * To finish physics Laboratories (Laboratories of nuclear and analytical physics).
- * To equip two special laboratories for postgraduate studies.
- * To equip a room for lectures and conferences for the department members

The Department laboratories

Physics Laboratory (1)

Physics Laboratory (2)

Physics Laboratory (3)

Physics Laboratory (4)

Study Plans of the department

Study Plan adopted by the Department of Physics

College of Education of Zulfi - University of Al Majmaa'h

The first level						
The course number and code	The course name	Hours	Activity type			Prerequisite (notes)
			theoretical	Practical	training	
General curriculum						
Faculty	Introduction to	٢	٢			University

requirement	Islamic culture					requirement
Faculty requirement	Language skills	٢	٢			University requirement
Faculty requirement	Optional university requirement	٢	٢			University requirement
Educational curriculum	Learning techniques and communication skills	٢	٢			Educational course
Educational curriculum	Fundamentals of Islamic education	٢	٢			Educational course
Educational curriculum	The system and policy of education in the Kingdom of Saudi Arabia	٢	٢			Educational course
Specialized curriculum						
CHEM 101	General chemistry (1)	٢	١	٢		
MATH 101	Calculus	٢	١	٢		
PHYS 101	General physics (1)	١	١			
PHYS 191	General Physics Laboratory (1)	١		٢		
Total						18

The second level						
The course number and code	The course name	Hours	Activity type			Prerequisite
			Theoretical type	Practical	Training	
	University requirement		٢	٢		
	Developmental psychology		٢	٢		Educational curriculum
Specialized curriculum						
PHYS 151	Mathematical physics (1)	٣	٣			General physics (1) Calculus (1)
PHYS 191	Mathematical physics laboratory (1)	١		٢		Concurrently with PHYS 151
PHYS 152	Classical mechanics (1)	٢	٢			Mathematical Physics (1) General

						Physics (2)
PHYS 192	Classical mechanics laboratory (1)	١		٢		Concurrently with PHYS 152
PHYS 102	General physics (2)	٢	٢			General Physics (1)
PHYS 192	General physics laboratory (2)	١		٢		Concurrently with PHYS 102
PHYS 111	Optics	٣	٣			General Physics (2)
PHYS 191	Optics laboratory	١		٢		Concurrently with PHYS 111
	Total					18

The third level						
The course number and code	The course name	Hours	Activity type			Prerequisite
			Theoretical	Practical	training	
General curriculum						
	University requirement	٢	٢			
	Mental health	٢	٢			Educational curriculum
	Principals of educational research	٢	٢			Educational curriculum
Specialized curriculum						
PHYS 253	Classical mechanics (2)	٢	٢			Classical Mechanics (1)
PHYS 293	Classical mechanics laboratory (2)	١		٢		
PHYS 251	Mathematical physics (2)	٢	٢			Mathematical Physics (1)
PHYS 291	Mathematical physics laboratory	١		٢		Concurrently with PHYS 251
PHYS	General physics	٢	٢			General

201	(3)					Physics (2)
PHYS 221	Thermodynamics	۳	۳			Mathematical Physics (1)
PHYS 291	Thermal Physics Laboratory	۱		۲		Concurrently with PHYS 201
Total						18

The fourth level						
The course number and code	The course name	Hours	Activity type			Prerequisite
General curriculum						
	University requirement					
	Educational psychology					Educational course
Specialized curriculum						
PHYS 252	Mathematical Physics (3)	۳	۲	۲		Mathematical Physics (2)
	Mathematical Physics Laboratory (3)					General Physics (1)
PHYS 242	Electricity and Magnetism (1)	۳	۳			Electricity and Magnetism (1)
PHYS 292	Electricity and Magnetism Laboratory (1)	۱		۲		Mathematical Physics (1)
PHYS 221	Wavelike movement and vibrations	۲	۲			General Physics (2)
PHYS 293	Physics Laboratory wavelenghts	۱		۲		Wavelike movement and vibrations
PHYS 241	Modern Physics	۳	۳			General Physics (2)
PHYS 294	Modern Physics Laboratory	۱		۲		Modern Physics
Total						18

The fifth level						
The course number	The course name	Hours	Activity type			Prerequisite

and code						
General curriculum						
	Educational Planning and Management	2				Educational course
	Production of electronic learning resources	2				Educational course
Specialized curriculum						
PHYS 352	Quantum mechanics (1)	۳	۳			Mathematical Physics (1) Classical Mechanics (2)
PHYS 342	Electricity and Magnetism (2)	۳	۳			Electricity and Magnetism (1)
PHYS 391	Electricity and Magnetism Laboratory (2)	۱		۲		Electricity and Magnetism (2)
PHYS 311	Electronics (1)	۲	۲			Electricity and Magnetism (1)
PHYS 392	Electronics Laboratory (1)	۱		۲		Electricity and Magnetism (1)
PHYS 331	Electrical Dynamics	۳	۳			Mathematical Physics (1) Electricity and Magnetism (2)
PHYS 394	Electrical Dynamics Laboratory	۱		۲		Electrical Dynamics
Total						18

The sixth level						
The course number and code	The course name	Hours	Activity type			Prerequisite
			theoretical	Practical	training	
General courses						
	Teaching	۲	۲			Educational

	strategies					course
	Curricula	۲	۲			Educational course
Specialized courses						
PHYS 38xx	Optional Course (*)	۲	۲			Thermodynamics
PHYS 353	Statistical physics	۳	۳			Mathematical Physics (1)
PHYS 352	Quantum mechanics (2)	۳	۳			Quantum mechanics (1)
PHYS 371	Solid State Physics (1)	۲	۲			Modern Physics
PHYS 395	Solid State Physics Laboratory (1)	۱		۲		Solid State Physics (1)
PHYS 312	Electronics (2)	۲	۲			Electronics (1)
PHYS 396	Electronics Laboratory (2)	۱		۲		Electronics (2)
Total						18

The seventh level						
The course number and code	The course name	Hours	Activity type			Prerequisite
			Theoretical	Practical	Training	
General curriculum						
	New trends in teaching strategies	۲	۲			Educational course
	Educational Evaluation	۲	۲			Educational course
Specialized curriculum						
PHYS 451	Mathematical physics (1)	۲	۲			Quantum physics (1)
PHYS 491	mathematical Physics Laboratory (1)	۱		۲		Solid State Physics (1)
PHYS 471	Solid State Physics (2)	۲	۲			Statistical physics Solid State Physics (2)
PHYS 492	Solid State Physics Laboratory (2)	۱		۲		Modern Physics Quantum physics (1)
PHYS	Atomic and	۳	۳			Atomic and

411	molecular spectra					molecular spectra
PHYS 493	Laboratory spectra	١		٢		Modern Physics
PHYS 461	Nuclear Physics (1)	٣	٣			Quantum physics (1)
PHYS 494	Nuclear Physics Laboratory (1)	١		٢		Nuclear Physics (1)
Total						18

The eighth level						
The course number and code	The course name	Hours	Activity type			Prerequisite
			Theoretical	Practical	training	
General courses						
	Education field	6			12	12 hours of practical training
Specialize courses						
PHYS 48xx	Optional Course (*)	٢	٢			
PHYS 452	mathematical physics (2)	٢	٢			mathematical physics (1)
PHYS 495	Mathematical physics laboratory (2)	١		٢		mathematical physics (1)
PHYS 411	Laser physics and its applications	٢	٢			Atomic and molecular spectra
PHYS 496	The laboratory of Laser and its applications	١		٢		Laser physics and its applications
PHYS 462	Nuclear Physics (2)	٣	٣			Nuclear Physics (1)
PHYS 497	Laboratory of Nuclear Physics (2)	١		٢		Nuclear Physics (2)
Total						18

Faculty members in the department

The head of the department

Country	Scientific institution	Specialty	General specialty	Qualification	Grade	Nationality	Name
Egypt	Egypt	Nuclear physics	Physics	PhD	Assistant	Egyptian	D. Mohsen Bakhit Mohamed Shaalan

The teaching members of the department							
State	Scientific institution	Specialty	General specialty	Qualification	Grade	Nationality	Name
Egypt	Egypt	Solids	Physics	PhD	Assistant	Egyptian	D. Amira Salah Eddin Ibrahim
Egypt	Egypt	Solids	Physics	PhD	Assistant	Egyptian	D. Iman Mohammed Shafi
Soudan	Soudan	Solids	Physics	PhD	Assistant	Sudanese	D. Najoua Ibrahim
Egypt	Egypt	Nuclear	Physics	PhD	Assistant	Egyptian	D. Olfat Saad Ahmed
Saudi Arabia	Saudi Arabia	Nuclear	physics	Master	Lecturer	Saudi	Tahani Mohamed Mousa
Saudi Arabia	Saudi Arabia	Physics	Physics	Bachelor	Teacher	Saudi	Sarah Abdel Aziz Fahd
Saudi Arabia	Saudi Arabia	Physics	Physics	Bachelor	Teacher	Saudi	Ilham Ahmed Dhafery
Saudi Arabia	Saudi Arabia	Physics	Physics	Bachelor	Teacher	Saudi	Areej Abdul Aziz Aljuana
Saudi Arabia	Saudi Arabia	Physics	Physics	Bachelor	Teacher	Saudi	Bodour Atheeb

