



**University of Al Mosul**  
**College of Science**  
**Department of Medical Physics**



## Research directions

Medical physics is the science of experiments, theories, and modern discoveries. It is the science that has explained many phenomena, and has been concerned with explaining the reason for the existence of life on planet Earth and not on other planets. After scientific development and modern scientific studies, the science of physics has brought about a tremendous breakthrough and a modern scientific revolution in the specializations. Medical, as this specialty joined the field of medicine and was concerned with diagnosing many pathological conditions.

### **Medical Physics Specialization:**

Many male and female students who wish to study medicine and specialize in one of the distinguished fields may prefer to specialize in the field of medical physics, which has become the focus of attention of many young people. Therefore, in this article we will explain all the information necessary in order to study medical physics and its great role and effective impact. In treating many medical conditions, through the use of radiotherapy methods, it is one of the fields of study of medical physics, but before you start thinking about studying medical physics, you must be fully aware of all areas of specialization

- This specialty is concerned with treating cancerous tumors through the use of advanced modern technology in radiotherapy, the possibility of diagnosis and optical imaging through the use of X-rays and infrared rays, as well as the use of magnetic resonance imaging.
- This specialty relies on the use of lasers in advanced surgical operations.
- This specialty is concerned with the harms and negative consequences that may result from radiotherapy and how to prevent and treat all individuals who work in this field because of its side effects.

It has many medical applications and diagnostics for some medical conditions, •  
• Medical physics is concerned with the possibility of .such as EEG and ECG developing therapeutic drugs.

• This specialty is concerned with studying the brain and ECG using infrared radiation

### **What is the importance of studying medical physics?**

• Modern, advanced scientific research and studies have helped diagnose many diseases through pathological medical consultations.

• Medical physics focused on high accuracy in therapeutic diagnosis of patients through the use of sound wave rays.

• Medical physics is concerned with all therapeutic methods, especially thermal therapy and particle physics.

• It aims to re-analyze and reconstruct images and achieve high accuracy in diagnosis through the use of advanced modern computer technology.

### **What are the departments of medical physics?**

There are several main departments that fall under the name of medical physics, which are as follows

- Physics of laser devices
- Magnetic resonance physics
- Diagnostic radiology physics
- Physics of sound waves
- Physics of radiation therapy
- Health physics of radiation protection.
- Physics of heat waves and thermal therapy

Many scientific studies and advanced modern studies have proven that radiation therapy has a positive effect in treating many medical conditions, but its excessive use has a negative and harmful effect, meaning that it is a double-edged sword

After completing university studies and obtaining a bachelor's degree in science and engineering, many male and female students may prefer to study medical physics and specialize in this field alone. The student has the right to apply for a master's degree in medical physics, and after that it is possible to obtain a doctorate degree, which is The duration of study is only two years.

Graduates are trained in one of the fields of work, such as diagnostic physics or radiotherapy physics. This specialization may provide graduates with a good opportunity to work in hospitals as medical physics consultants, and the period of training and practical application may be the first step on the path to distinguished career work

### **What are the best universities to study medical physics?**

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