

BIOPHYSICS AND BIOPHOTONICS

Academic discipline "Biophysics and Biophotonics" corresponds to Educational and professional program "Bachelor" in the section 6.050902 "Radio-electronic devices".

The discipline belongs to the program of professional and practical training.

The subject of the discipline is the main processes in biological environment at the cellular level, arising under the influence of laser and ultraviolet radiation, as well as research of biological objects at the molecular level using modern electronic diagnostic equipment for determination of human diseases.

Connection with other disciplines: discipline "Biophysics and Biophotonics" bases on the general education knowledge (mathematics, physics, chemistry, principles of biophysics) and the applied disciplines - "Interaction of physical fields with biological objects", "Biological signals, sensors and transducers". Furthermore, this discipline is closely related to such disciplines as: "The element base of Radio-electronic equipment", "Optoelectronic devices of Radio-electronic equipment", "Circuit engineering of Radio-electronic equipment", "Principles of Microelectronics", "Principles of electronics", "Principles of television and television systems".

The aim of the discipline is to develop students' ability to engineer, operate and maintain modern complex diagnostic equipment; design devices considering the connection between structure and properties of materials under the action of external physical factors. In accordance with the requirements of the Educational program, after achieving mastery of the discipline students should demonstrate the following results:

Knowledge: basic principles of functioning of modern high-tech medical equipment;

Skills: develop, engineer, design and repair of medical electronic equipment for determination of human diseases;

Experience: modern methods of computer diagnostics; simulation study of inflammatory and pathological processes in the human body, using modern methods and algorithms for processing the results of biomedical research at the cellular level