

PREFACE

Physics, the most fundamental physical science, is concerned with the basic principles of the Universe. Physics is a basis for theoretical education of engineers, for their successful activity in any field of modern manufacturing. Also physics forms a background for engineers. This textbook contains many practical examples of using physics in Geodesy.

This book is well illustrated with figures and tables that help to better understand the theoretical materials, physical processes and laws. Because the students of the first grade do not have yet the proper skills in calculus the authors tried to present the material clearly enough with detailed mathematical transformations. Some formulas repeat in the textbook. In our opinion, that will simplify tracing of the sequence of presentation of material by the students.

There is a strong need in Physics textbooks and manuals in Ukrainian language after the proclamation of independence of Ukraine. For those reason the present textbook on physics is written. This textbook is based on Educational-professional bachelor program in the field of Geodesy. There are 10 chapters in this manual including Mechanics, Thermodynamics, Electrostatics, Direct Electric Current, Electromagnetism, Wave Optics, Quantum Nature of Radiation, Physics of Atoms and Molecules, Solid State Physics and Nuclear Physics. The authors tried to adhere to laconic style of presentation, that would combine basis of classical and modern physics simultaneously, put accents in the text on basis concepts and laws that will assist the best comprehending of material. The used mathematics provides the sufficient level of presentation of the material and corresponds to mathematical level of the sophomores.

The material accompanied by some historical information where a substantial accent done on the contribution of Ukrainian physicists. In a concept “the Ukrainian physicists” the authors included the scientists who were born in Ukraine and worked or work in the institutions of the Academy of science or universities in Ukraine, and in Russia, Europe and USA as well. The scientists who were born outside Ukraine but worked here are also included.