ANNOUNCEMENT

Practical information science. From problem to program

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This book is a reference textbook for teachers who are teaching a course on information science in schools with an in-depth study of physics and mathematics.

The content and logic of the exposition in this book are oriented toward a single practical goal—solution of problems with the help of a computer. The title itself makes it clear that here the process of going from problem to program will be studied. This is what distinguishes "Practical Information Science" from textbooks on programming, which follow the principle "from programming language to problem," where the problems mainly illustrate the peculiarities of the language constructions.

The ten years of experience of the authors, who are instructors at the Moscow Physicotechnical Institute, in working with teachers and pupils on the subject of information science has revealed in the education of both teachers and pupils a unique "mathematical lacuna" associated with ignorance of the fundamental and quite simple principles on which the solution of problems on a computer are based.

How does computer solution of problems differ from the standard method of solution? The computer requires a very precise formulation of a problem and of the method for solving it. The process of computer solution of a problem can be represented in the form of a chain:

Problem → mathematical model → algorithm

→ program → product of program.

How to convert the problem into the product of a program and how to pass correctly and systematically along this chain are the main content of this book.

The book will be published in several variants:

1. Russian language text.
2. Russian language text with a Russian-language computer supplement recorded on a flexible disk (diskette).
3. English language text.
4. English language text with an English-language computer supplement recorded on a flexible disk (diskette).

The computer supplement consists of two parts: a brief didactic course, which illustrates the main ideas of the textbook, and demonstration programs, which expound the solution process for the problems presented in the textbook.

The computer supplement requires a computer compatible with an IBM personal computer PC XT/AT. The implementation language is SI and the demonstration language is Pascal.

The volume of the book is 400 to 480 thousand ens.
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