

TEXTS AND MONOGRAPHS IN COMPUTER SCIENCE  
Edited by David Gries

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**Niklaus Wirth**

**PROGRAMMING  
IN  
MODULA-2**

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SECOND, CORRECTED EDITION



SPRINGER-VERLAG  
BERLIN HEIDELBERG NEW YORK

# Modula 2 Programming Computing Programming Textbooks

**AW Rasmussen**



## **Modula 2 Programming Computing Programming Textbooks:**

*Programming in Modula-2* N. Wirth, 2012-12-06 This text is an introduction to programming in general and a manual for programming with the language Modula 2 in particular It is oriented primarily towards people who have already acquired some basic knowledge of programming and would like to deepen their understanding in a more structured way Nevertheless an introductory chapter is included for the benefit of the beginner displaying in a concise form some of the fundamental concepts of computers and their programming The text is therefore also suitable as a self contained tutorial The notation used is Modula 2 which lends itself well for a structured approach and leads the student to a working style that has generally become known under the title of structured programming As a manual for programming in Modula 2 the text covers practically all facilities of that language Part 1 covers the basic notions of the variable expression assignment conditional and repetitive statement and array data structure Together with Part 2 which introduces the important concept of the procedure or subroutine it contains essentially the material commonly discussed in introductory programming courses Part 3 concerns data types and structures and constitutes the essence of an advanced course on programming Part 4 introduces the notion of the module a concept that is fundamental to the design of larger programmed systems and to programming as team work The most commonly used utility programs for input and output are presented as examples of modules And finally Part 5 covers facilities for system programming device handling and multiprogramming

**Programming in Modula-2** Jean-Paul Tremblay, David A. Daoust, John M. DeDourek, 1989-12-01 *An Introduction to Programming with Modula-2* Patrick D. Terry, 1987-01-01 *Software Programming Languages*

**Modula-2 for Pascal Programmers** R. Gleaves, 1984-10-10 *Modula-2 for Pascal Programmers* Richard Gleaves, 1984 *Introduction to Programming with Modula-2* Gunther Blaschek, Gustav Pomberger, R Bach, 1990-11-22

**Modula-2 Programming** B. J. Holmes, 1994 Modula 2 is a successor to Pascal The language combines many of the features found in Pascal with additional features for writing large scale programs and for systems programming Modula 2 is a general purpose language that is easy to learn and can be used over a wide range of applications The development of the language statements and programs are taken in manageable steps to enable the reader to build a firm foundation of knowledge The type of programming examples used are simple enough to give the reader confidence at each stage of learning to program Modula 2

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**A Guide to Modula-2** Kaare Christian, 2012-12-06 Modula 2 is a simple yet powerful programming language that is suitable for a wide variety of applications It is based on Pascal a successful

programming language that was introduced in 1970 by Niklaus Wirth. During the 1970s Pascal became the most widely taught programming language and it gained acceptance in science and industry. In 1980 Dr Wirth released the Modula 2 programming language. Modula 2 is an evolution of Pascal. It improves on the successes of Pascal while adding the MODULE a tool for expressing the relations between the major parts of programs. In addition Modula 2 contains low level features for systems programming and coroutines for concurrent programming. Programming languages are important because they are used to express ideas. Some programming languages are so limited that certain ideas can't be easily expressed. For example languages that lack floating point arithmetic are inappropriate for scientific computations. Languages such as Basic and Fortran that lack recursion are unsuitable for text processing or systems programming. Sometimes a programming language is useable for a certain application but it is far from ideal. A good example is the difficulty of writing large programs in pure Pascal. Pascal is a poor language for large jobs because it lacks facilities for partitioning a program. viii Preface 6

*Modula-2* Gary Ford, Richard S. Wiener, 1986-04-02      [Modula-2 Programming](#) Barry J. Holmes, 1989      **Programming in Modula-2** Niklaus Wirth, 2012-12-06 This text is an introduction to programming in general and a manual for programming with the language Modula 2 in particular. It is oriented primarily towards people who have already acquired some basic knowledge of programming and would like to deepen their understanding in a more structured way. Nevertheless an introductory chapter is included for the benefit of the beginner displaying in a concise form some of the fundamental concepts of computers and their programming. The text is therefore also suitable as a self contained tutorial. The notation used is Modula 2 which lends itself well for a structured approach and leads the student to a working style that has generally become known under the title of structured programming. As a manual for programming in Modula 2 the text covers practically all facilities of that language. Part 1 covers the basic notions of the variable expression assignment conditional and repetitive statement and array data structure. Together with Part 2 which introduces the important concept of the procedure or subroutine it contains essentially the material commonly discussed in introductory programming courses. Part 3 concerns data types and structures and constitutes the essence of an advanced course on programming. Part 4 introduces the notion of the module a concept that is fundamental to the design of larger programmed systems and to programming as team work. The most commonly used utility programs for input and output are presented as examples of modules.      **Introduction to Programming with Modula-2** Saim Ural, Suzan Ural, 1987      **Modula-2** Daniel Thalmann, 2012-12-06 MODULA 2 is a new programming language which was created by Niklaus Wirth of the Swiss Federal Institute of Technology ETH in Zurich. The language is derived from PASCAL it includes all aspects of PASCAL and sometimes improves on them. Moreover MODULA 2 includes the important module concept as well as multiprogramming capabilities and a way of implementing low level software in an elegant manner. In summary MODULA 2 may be used equally well as a general purpose programming language and as a system implementation language. MODULA 2 provides the programmer with a good way of writing high

quality software In particular modules are powerful tools for achieving modularity reliability readability extensibility reusability and machine independence This book presents the complete MODULA 2 language from the beginning Each topic is presented by means of numerous examples and each concept is justified The syntax of the language is explained using syntactic diagrams This book is not a reference manual for MODULA 2 but a textbook from which the student can learn the language progressively The most important concepts i e procedures modules and data structures are explained in great detail and methodological aspects are also emphasized Beginning in the first chapter the student may execute his her own programs Program examples in this book have been executed on several machines APPLE II IBM PC and VAX 11 780 and they may be taken as a basis for students

**Oh My! Modula-2!** Cooper Clancy Johnson Beekman, Doug Cooper, 1990-12 Let me begin with a confession when I began to write I wondered if yet another introductory programming language was needed Nevertheless thought I better Oh My Modula 2 today than Oh No Not Ada tomorrow [Modula-2 Programming](#) Ian Kaplan, Mike Miller, 1986-01-01

**Modula-2** William C. Jones, 1987-02-15 Requiring no prior knowledge of programming this book provides a comprehensive treatment of Modula 2 emphasizing the development of good programming style and skills Designed to allow students to use longer more instructional programs quickly it presents methods of algorithm development with examples presented early in the text and throughout the book Offers a thorough explanation and illustrations of problem solving through top down analysis and covers procedures and parameters allowing students to deal with non trivial realistic programs early in the course Also introduces arrays designed to provide a strong foundation for studying modules and other topics Includes over 60 examples of complete programs Check Your Understanding exercises numerous exercises requiring modifications of existing programs plus warning sections for debugging programs and avoiding errors

**Modula-2 Programming** Ed Knepley, Robert Platt, 1985-01-01 *The Software Life Cycle* Darrel Ince, Derek Andrews, 2014-05-20 The Software Life Cycle deals with the software lifecycle that is what exactly happens when software is developed Topics covered include aspects of software engineering structured techniques of software development and software project management The use of mathematics to design and develop computer systems is also discussed This book is comprised of 20 chapters divided into four sections and begins with an overview of software engineering and software development paying particular attention to the birth of software engineering and the introduction of formal methods of software development The next section explores some aspects of software engineering that tend to get ignored in the literature including functional programming functional programming languages and relational databases The reader is then introduced to structured methods of software development along with software project management The final chapter is devoted to software testing which can be functional or nonfunctional This monograph will be useful to software engineers and designers

**The Modula-2 Software Component Library** Charles Lins, 2012-12-06 This book is the third and final volume in a series entitled The Modula 2 Software Component Library C Lins collection of reusable standard software

components could be the basis for every programmer's software project in Modula 2. Components that are implementations of commonly used data structures are presented along with a description of their functionality and efficiency. Moreover, the books provide the background necessary to tailor these components to the specific needs of any Modula 2 environment. For Modula 2 programmers, this series of books could prove as useful and indispensable as the original language reference by Niklaus Wirth. This third volume discusses the concepts of trees and graphs, shows their specifications, and provides implementations for various forms of trees and graphs.

**Modula-2** William Charles Jones, 1987-01-01

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