

# A Software Design Specification Template

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## Introduction

The following is an attempt to put together a complete, yet reasonably flexible template for the specification of software designs. Wherever possible, I have tried to provide guidelines (instead of prescribing requirements) for the contents of various sections and subsections of the document. Some may prefer to require more detailed subsections of a particular section, choosing one or more of the subsection topics from the list of guidelines provided. In this sense, this document is really a template for a template.

In devising this template, I have gleaned information from many sources, including various texts on Software Engineering (Pressman, Sommerville, and Van Vliet), Object-Oriented Development (Booch, Rumbaugh, Berard, and Wirfs-Brock), various SEI reports, DoD-Std and Mil-Std documentation requirements (2167/2167A), and IEEE documentation standards (particularly IEEE-1016 for software designs, and IEEE-830 for software requirements). I have made every effort *not* to assume or impose a particular software

# Software Specification And Design An Engineering Approach

**Donald G. Firesmith**



## **Software Specification And Design An Engineering Approach:**

**Software Specification and Design** John C. Munson, Ph.D., 2005-09-26 The rigors of engineering must soon be applied to the software development process or the complexities of new systems will initiate the collapse of companies that attempt to produce them Software Specification and Design An Engineering Approach offers a foundation for rigorously engineered software It provides a clear vision of what occurs at each stage of development parsing the stages of specification design and coding into compartments that can be more easily analyzed Formalizing the concepts of specification traceability witnessed at the software organizations of Rockwell IBM FSD and NASA the author proposes a strategy for software development that emphasizes measurement He promotes the measurement of every aspect of the software environment from initial testing through test activity and deployment operation This book details the path to effective software and design It recognizes that each project is different with its own set of problems so it does not propose a specific model Instead it establishes a foundation for the discipline of software engineering that is both theoretically rigorous and relevant to the real world engineering environment

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**Software Engineering** James F. Peters, Witold Pedrycz, 2000 A clear cut practical approach to software development Emphasizing both the design and analysis of the technology Peters and Pedrycz have written a comprehensive and complete text on a quantitative approach to software engineering As you read the text you ll learn the software design practices that are standard practice in the industry today Practical approaches to specifying designing and testing software as well as the foundations of Software Engineering are also presented And the latest information in the field additional experiments and

solutions to selected problems are available at the authors s web site <http://www.ee.umanitoba.ca/clib/main.html> Key Features Thorough coverage is provided on the quantitative aspects of software Engineering including software measures software quality software costs and software reliability A complete case study allows students to trace the application of methods and practices in each chapter Examples found throughout the text are in C and Java A wide range of elementary and intermediate problems as well as more advanced research problems are available at the end of each chapter Students are given the opportunity to expand their horizons through frequent references to related web pages

**Proceedings of the Twenty-second SIGCSE Technical Symposium on Computer Science Education** Nell Dale,1991

**A Methodology, Specification Language, and Automated Support Environment for Computer-aided Design Systems** Duane Robert Worley,Rand Corporation,1986 Computer based systems are becoming increasingly complex and expensive and there is a need for extensive design prior to embarking upon costly implementation phases Many design tools and design techniques have been proposed and some have been built to stand alone They are at best loosely integrated with other tools They have much in common notably the construction and manipulation of models of the complex system under design and a high degree of interactivity A detailed study of areas of commonality guides the requirements definition of a computer aided design of computer systems CADPCS support nucleus The nucleus provides an integrated set of primitives A specification language targeted to the support nucleus allows description of the design model and human model interaction This paper hypothesizes that it is possible to define a methodology a specification language and an automated support environment suitable to the systematic development and execution of CADPCS systems The methodology is applied to UCLA s Systems Architect s Apprentice SARA system the test bed and the resulting SARA IDEAS system serves as an existence proof for the hypothesis

Rand abstracts

**Object-Oriented Requirements Analysis and Logical Design** Donald G. Firesmith,1996-05-27 Object Oriented Requirements Analysis and Logical Design A Software Engineering Approach Designed for professional software engineers this definitive reference demonstrates how to use object oriented development strategies from the start which will help to assure the success of the evolving object oriented system Object Oriented Requirements Analysis and Logical Design provides professionals with the necessary concepts models notation method and knowledge with which to effectively develop large complex software applications using a practical yet state of the art object oriented method This book provides a solid understanding of the underlying concepts of Object Oriented Development OOD Readers will also learn how to use the ASTS Development Method 3 ADM 3 a third generation object oriented development method for effectively performing OORALD This important work also enables readers to Understand the fundamental concepts of object oriented requirements and language independent design Understand develop and evaluate the six major object oriented models Develop and critique effective graphics for object oriented requirements analysis and language independent design Use a powerful object oriented specification and design language to supplement the graphics

Proceedings of the IEEE 1987 National Aerospace and

Electronics Conference, NAECON 1987 ,1987      **Fourth Conference on Artificial Intelligence for Space Applications**  
 ,1988      **ZUM ... the Z Formal Specification Notation** ,1995      Proceedings of the Seventh Texas Conference on  
Computing Systems ,1978      System Requirements Engineering Pericles Loucopoulos,Vassilios Karakostas,1995 System  
 Requirements Engineering presents a balanced view of the issues concepts models techniques and tools found in  
 requirements engineering research and practice Requirements engineering is presented from business behavioural and  
 software engineering perspectives and a general framework is established at the outset This book considers requirements  
 engineering as a combination of three concurrent and interacting processes eliciting knowledge related to a problem domain  
 ensuring the validity of such knowledge and specifying the problem in a formal way Particular emphasis is given to  
 requirements elicitation techniques and there is a fully integrated treatment of the development of requirements  
 specifications through enterprise modelling functional requirements and non functional requirements      *NASA SP.* ,1992  
Software Specification and Design Marilyn Keller,Kenneth C. Shumate,1992-01-16 Clearly demonstrates how to tackle  
 the difficult task of software specification and design Focusing on the specification to design transition it provides step by  
 step rules guidelines heuristics hints and tips A large case study is used to illustrate key aspects of project development  
 Along with a variety of analysis and design methods for both sequential and concurrent systems it also offers detailed  
 coverage of the transitional phase      *Journal of Management Information Systems* ,1984      Real Time Programming, 1980  
 V. H. Haase,1980 Published in Annual Review in Automatic Programming Vol 10 Includes a chapter on analysis description of  
 automatic control systems      **Government reports annual index** ,199?      *Advance Working Papers* ,1988  
*Proceedings of the IEEE International Symposium on Requirements Engineering, January 4-6, 1993, San Diego,*  
*California* ,1992      **International Journal of Computer Systems Science & Engineering** ,1993

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