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2.2.3. Purpose of a technological system2.3. Function, behavior and structure of a technological system; 2.4. Intended and concomitant effects of a technological system; 2.5. Modes, mode switching and states; 2.5.1. Modes of operation; 2.5.2. Mode switching; 2.5.3. Operating states; 2.6. Errors, faults and failures; 2.7. "The human factor"; 3: Knowledge Systems; 3.1. Introduction; 3.2. Knowledge and its bearers; 3.3. Intersubjective knowledge; 3.4. Concepts, propositions and conceptual knowledge; 3.5. Objective and true knowledge; 3.6. Scientific and technological knowledge
3.6.1. Fundamental sciences3.6.2. Applied sciences and technology; 3.6.3. Operative technological rules; 3.6.4. Substantive technological rules; 3.7. Knowledge and belief; 4: Semiotic Systems and Models; 4.1. Introduction; 4.2. Signs and systems of signs; 4.3. Nomological propositions and law statements; 4.4. Models, object models, theoretical models and simulation; 4.5. Representativeness of models and the expressiveness of languages; 4.5.1. Representativeness of models; 4.5.2. Expressiveness of a language; PART 2: Methods; 5: Engineering Processes; 5.1. Introduction
5.2. Systems engineering process5.2.1. General framework; 5.2.2. Design process; 5.2.3. Safety assessment process; 5.2.4. Requirement and assumption validation; 5.2.5. Verification of the implementation regarding requirements; 5.2.6. Managing configurations; 5.2.7. Process (quality) assurance, certification and coordination with authorities; 6: Determining Requirements and Specification Models; 6.1. Introduction; 6.2. Specifications and requirements; 6.3. Text-based requirements and subjectivity; 6.4. Objectifying requirements and assumptions through property-based requirements
6.4.1. Definition

Sommario/riassunto

This book is a contribution to the definition of a model based system engineering (MBSE) approach, designed to meet the objectives laid out by the INCOSE. After pointing out the complexity that jeopardizes a lot of system developments, the book examines fundamental aspects of systems under consideration. It goes on to address methodological issues and proposes a methodic approach of MBSE that provides, unlike current practices, systematic and integrated model-based engineering processes. An annex describes relevant features of the VHDL-AMS language supporting the methodological issues describe