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Nota di contenuto	Space Station Engineering Design Issues -- Copyright -- Contents -- Executive Summary -- GENERAL DESIGN ISSUES -- ISSUES RELATED TO UTILIZATION AND OPERATIONS REQUIREMENTS -- SELECTED ISSUES RELATED TO SYSTEM REQUIREMENTS AND DESIGN -- Software and Data Management -- Communications and Tracking -- Automation and Robotics -- Electrical Power System -- Thermal Control System -- Environmental Control and Life Support System, Man Systems, Extravehicular Activity System -- Fluid Management System -- MANAGEMENT ISSUES RELEVANT TO DESIGN -- 1 Introduction -- BACKGROUND -- APPROACH -- 2 General Design Issues -- CREW SAFETY -- GROUND VERIFICATION OF ELEMENTS, ASSEMBLIES, AND OPERATIONS -- RELIANCE ON MODELS AND MODELING FOR VERIFICATION -- ON-ORBIT ASSEMBLY, INTEGRATION, AND VERIFICATION -- SOFTWARE ENVIRONMENT -- RESOURCE ADEQUACY AND ALLOCATION FOR SPACE STATION ASSEMBLY AND OPERATIONS --

INSURANCE" ALTERNATIVES FOR FLIGHT-CRITICAL SYSTEMS -- STANDARDS AND COMMONALITY -- DESIGN FOR FUTURE REFURBISHMENT -- 3 Issues Related to Utilization and Operations Requirements for the Space Station -- DESIGN REFERENCE MISSIONS -- ASSEMBLY PHASE REQUIREMENTS -- Assembly Sequence -- Premature Flight Telerobotic Servicer Launch -- Assembly Phase Utilization -- MATURE UTILIZATION AND OPERATIONS REQUIREMENTS -- Microgravity Environment -- Crew Utilization -- Commonality -- Logistical Resupply -- Contingency Planning -- EVOLUTIONARY PHASE REQUIREMENTS -- Essential Evolutionary Capabilities -- Heroic Evolution -- 4 Issues Related to Systems Requirements and Design -- SYSTEMS ARCHITECTURAL CONCERNS -- Systems Requirements -- Systems Interactions -- Allocation of Systems Requirement Impacts -- Modeling -- Growth Flexibility -- SPECIFIC SYSTEMS ISSUES -- Software and Data Management -- Overview -- Software Risk Management. Software Development Schedules and Uncertainties in Application Software Requirements -- Software Support Environment -- Software Design for Supportability -- Software Integration and Verification -- Space Station Information System Services -- Communications and Tracking -- End-to-End Considerations -- Electromagnetic Interference -- Automation and Robotics -- Premature Flight Telerobotic Servicer Launch -- Solution-Driven Versus Problem-Driven Approaches to Automation Initiatives -- Advanced Automation Targets and Products -- Advanced Automation and Robotics Plan -- Electrical Power System -- Thermal Control System -- Environmental Control and Life Support System, Man System, and Extravehicular Activity System -- Overview -- Microbial and Toxin Control in the Space Station -- In-Space Testing of Life Support Systems -- Medical Evacuation -- Human Factors and Habitability -- Radiation -- Extravehicular Activity -- FLUID MANAGEMENT SYSTEM -- 5 Management Issues Relevant to Design -- IMPACT OF THE INTERNAL NASA CULTURE ON THE SPACE STATION PROGRAM -- Background -- Impact of Management Complexities on the Space Station Technical Program -- IMPACT OF PROGRAM INSTABILITIES ON THE SPACE STATION TECHNICAL PROGRAM -- MANAGEMENT OF FREE-FLYING PLATFORMS -- ASSOCIATE CONTRACTOR RELATIONSHIPS -- TECHNICAL MANAGEMENT PROCESS -- SYSTEM SPECIFICATION -- INTEGRATION AND VERIFICATION MANAGEMENT PLAN -- COMMUNICATIONS AND DATA SYSTEMS -- Supplementary Discussion -- MATERIALS -- HEALTH MAINTENANCE -- TOXIC MATERIALS HANDLING -- POTENTIAL INCOMPATIBILITY OF USER REQUIREMENTS -- CREW SAFETY -- Appendix A Letter from the NASA Office of Space Station -- Appendix B Statement of Task -- Appendix C Presenters at the Workshop -- Acronyms -- Selected Material Used at the Workshop -- VIEWGRAPHS -- OTHER NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MATERIAL. NATIONAL RESEARCH COUNCIL MATERIAL -- PAPERS FROM 1988 INTERNATIONAL ASTRONAUTICAL FEDERATION CONGRESS -- OTHER.

Sommario/riassunto

The Space Station Freedom program is the next major U.S. manned space initiative. It has as its objective the establishment of a permanently manned facility in low earth orbit. This book summarizes the main findings and recommendations of a workshop that examined the space station program with a view toward identifying critical engineering issues related to the design and operation of the station.
