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Nota di contenuto	Contents; Preface; Introduction to the book; 1. Introduction to hazard studies; 1.1 Scope and objectives of this chapter; 1.2 Introduction to hazards and risk management; 1.3 Risk assessment; 1.4 Concepts of Alarp and tolerable risk; 1.5 Regulatory frameworks and examples from EU and USA; 1.6 Methods of identifying hazards; 2. Hazard studies at levels 1 and 2; Objectives 2; 2.1 Introduction; 2.2 Methodologies for hazard study 1; 2.3 Process hazard study 2; 2.4 Practical example of hazard 2 application; 2.5 Case study; 2.6 Conclusion on hazard studies 1 and 2 3. Risk reduction measures using alarms and trips3.1 Risk reduction measures; 3.2 Terminologies and standards for safety systems; 3.3 Equipment under control; 3.4 Protection layers; 3.5 The role of alarms in safety; 3.6 Alarm types and do they qualify as safeguards?; 3.7 Identification and design of safety-related alarms; 3.8 Key design principles for alarms; 3.9 SIS, principles of separation; 3.10 Simple and complex shutdown sequences, examples; 3.11 Conclusions: the role of Hazops in defining alarms and trips; 4. Hazop method; Objectives 4; 4.1 Introduction; 4.2 Introduction to Hazop 4.3 Overview of Hazop method4.4 Points to note on the examination

procedure; 4.5 Practical exercise: continuous process example; 4.6 Hazop for batch processes and sequential operations; 4.7 Hazops for other disciplines; 4.8 Conclusions; 5. Planning and leadership of Hazops; Objectives 5; 5.1 Introduction; 5.2 Organizing the Hazop; 5.3 The team leader and the team; 5.4 Practical exercise: hybrid batch process example; 6. Specifying safety instrumented systems; Objectives 6; 6.1 Introduction; 6.2 Risk reduction by instrumented protection
6.3 What affects the safety integrity of an instrument trip?6.4 Overview of IEC 61508; 6.5 Determining the safety integrity; 6.6 Design essentials to meet SIL targets; 6.7 Specifying the SIS requirements; 6.8 Documenting the SRS; 6.9 Conclusions; 7. Hazard analysis methods; 7.1 Introduction; 7.2 Outline of methods; 7.3 Fault tree analysis; 7.4 Practical exercise in FTA; 7.5 Conclusions; 8. Factors in the choice of protection system; 8.1 Introduction and objectives; 8.2 Equipment selection; 8.3 Key points about sensors and actuators
8.4 Guidelines for the application of field devices in the SIS8.5 IEC 61508 requirements for field devices; 8.6 Technology issues; 8.7 Guidelines for final elements; 8.8 Summary of technology and applications; 8.9 Summary of SIL vs cost; 9. Exercise in specifying an SIS from the Hazop; Objective 9; 9.1 Introduction; 9.2 Process description; 9.3 Safety requirements specifications; 9.4 Conclusion; Appendix A: References used in the manual; Appendix B: Some websites for safety systems information; Appendix C: Notes on national regulations relevant to hazard study and safety management
Appendix D: Software tools for hazard studies

Sommario/riassunto

Do you have trips and safety interlocks in your plant? Are they good enough or are they perhaps over-designed and much more expensive than necessary? Are you or your company aware of how Hazard Studies should define risk reduction requirements? Are you actually using Hazard Studies at all?The answer is the integrated approach to safety management. New international standards combined with well-proven hazard study methods can improve safety management in your company.Practical Hazops, Trips and Alarms for Engineers and Technicians describes the role of hazard studies in risk managem