1.	Record Nr.	UNINA9910141176103321
	Autore	Pless Vera
	Titolo	Introduction to the theory of error-correcting codes / / Vera Pless
	Pubbl/distr/stampa	New York, New York : , : John Wiley & Sons, Inc., , 1998 ©1998
	ISBN	1-283-33200-0 9786613332004 1-118-03274-8 1-118-03099-0
	Edizione	[3rd ed.]
	Descrizione fisica	1 online resource (226 p.)
	Collana	Wiley-Interscience Series in Discrete Mathematics and Optimization
	Disciplina	003.54 005.7/2 005.72
	Soggetti	Error-correcting codes (Information theory) Electronic books.
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	"A Wiley-Interscience Publication."
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Introduction to the Theory of Error-Correcting Codes; Contents; Preface; 1 Introductory Concepts; 1.1 Introduction; 1.2 Basic Definitions; 1.3 Weight, Minimum Weight, and Maximum-Likelihood Decoding; Problems; 2 Useful Background; 2.1 Syndrome Decoding; 2.2 Perfect Codes, Hamming Codes, Sphere-Packing Bound; 2.3 Packing Radius, Covering Radius, MDS Codes, and Some Bounds; 2.4 Self-Dual Codes, Golay Codes; 2.5 Reed-Muller Codes; 2.6 Puncturing, Extending, and Shortening; Problems; 3 A Double-Error-Correcting BCH Code and a Finite Field of 16 Elements; 3.1 The Problem; 3.2 Polynomials 3.3 A Finite Field of 16 Elements3.4 Double-Error-Correcting Bose-Chaudhuri-Hocquenghem (BCH) Code; Problems; 4 Finite Fields; 4.1 Groups; 4.2 Structure of a Finite Field; 4.3 Minimal Polynomials; 4.4 Factoring xn - 1; Problems; 5 Cyclic Codes; 5.1 Origin and Definition of Cyclic Codes; 5.2 How to Find Cyclic Codes: The Generator Polynomial; 5.3 Generator Polynomial of the Dual Code; 5.4 Idempotents and Minimal Ideals for Binary Cyclic Codes; Problems; 6 Group of a Code

Sommario/riassunto

A complete introduction to the many mathematical tools used to solve practical problems in coding.Mathematicians have been fascinated with the theory of error-correcting codes since the publication of Shannon's classic papers fifty years ago. With the proliferation of communications systems, computers, and digital audio devices that employ error-correcting codes, the theory has taken on practical importance in the solution of coding problems. This solution process requires the use of a wide variety of mathematical tools and an understanding of how to find mathematical techniques to sol