

1. Record Nr.	UNINA9910462821603321
Autore	Hahn Brian D
Titolo	Essential MATLAB for engineers and scientists [[electronic resource] /] / Brian H. Hahn, Daniel T. Valentine
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, c2013
ISBN	1-283-95060-X 0-12-394613-1
Edizione	[5th ed.]
Descrizione fisica	1 online resource (425 p.)
Altri autori (Persone)	ValentineD. T. <1946->
Disciplina	620.00285536
Soggetti	Numerical analysis - Data processing Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Half Title; Title Page; Copyright; Contents; Preface; Essentials; 1 Introduction; 1.1 Using MATLAB; 1.1.1 Arithmetic; 1.1.2 Variables; 1.1.3 Mathematical functions; 1.1.4 Functions and commands; 1.1.5 Vectors; 1.1.6 Linear equations; 1.1.7 Tutorials and demos; 1.2 The desktop; 1.2.1 Using the Editor and running a script; 1.2.2 Help, publish, and view; 1.2.3 Symbolics and the MuPAD notebook APP; Differentiation and integration; 1.2.4 Other APPS; 1.2.5 Additional features; 1.3 Sample program; 1.3.1 Cut and paste; 1.3.2 Saving a program: script files; Current directory Running a script from the current folder browser1.3.3 A program in action; Summary; Chapter exercises; 2 MATLAB Fundamentals; 2.1 Variables; 2.1.1 Case sensitivity; 2.2 The workspace; 2.2.1 Adding commonly used constants to the workspace; 2.3 Arrays: Vectors and matrices; 2.3.1 Initializing vectors: Explicit lists; 2.3.2 Remember the following important rules; 2.3.2 Initializing vectors: The colon operator; 2.3.3 The linspace and logspace functions; 2.3.4 Transposing vectors; 2.3.5 Subscripts; 2.3.6 Matrices; 2.3.7 Capturing output; 2.3.8 Structure plan; 2.4 Vertical motion under gravity 2.5 Operators, expressions, and statements2.5.1 Numbers; 2.5.2 Data types; 2.5.3 Arithmetic operators; 2.5.4 Operator precedence; 2.5.5 The colon operator; 2.5.6 The transpose operator; 2.5.7 Arithmetic operations on arrays; 2.5.8 Expressions; 2.5.9 Statements; 2.5.10

Statements, commands, and functions; 2.5.11 Formula vectorization; 2.6 Output; 2.6.1 The disp statement; 2.6.2 The format command; 2.6.3 Scale factors; 2.7 Repeating with for; 2.7.1 Square roots with Newton's method; 2.7.2 Factorials!; 2.7.3 Limit of a sequence; 2.7.4 The basic for construct; 2.7.5 for in a single line 2.7.6 More general for 2.7.7 Avoid for loops by vectorizing!; 2.8 Decisions; 2.8.1 The one-line if statement; 2.8.2 The if-else construct; 2.8.3 The one-line if-else statement; 2.8.4 elseif; 2.8.5 Logical operators; 2.8.6 Multiple ifs versus elseif; 2.8.7 Nested ifs; 2.8.8 Vectorizing ifs?; 2.8.9 The switch statement; 2.9 Complex numbers; Summary; Chapter exercises; 3 Program Design and Algorithm Development; 3.1 The program design process; 3.1.1 The projectile problem; 3.2 Programming MATLAB functions; 3.2.1 Inline objects: harmonic oscillators; 3.2.2 MATLAB function: $y = f(x)$; Summary Chapter exercises 4 MATLAB Functions and Data Import-Export Utilities; 4.1 Common functions; 4.2 Importing and exporting data; 4.2.1 The load and save commands; 4.2.2 Exporting text (ASCII) data; 4.2.3 Importing text (ASCII) data; 4.2.4 Exporting binary data; 4.2.4.1 Importing binary data; Summary; Chapter exercises; 5 Logical vectors; 5.1 Examples; 5.1.1 Discontinuous graphs; 5.1.2 Avoiding division by zero; 5.1.3 Avoiding infinity; 5.1.4 Counting random numbers; 5.1.5 Rolling dice; 5.2 Logical operators; 5.2.1 Operator precedence; 5.2.2 Danger; 5.2.3 Logical operators and vectors 5.3 Subscripting with logical vectors

Sommario/riassunto

The fifth edition of Essential MATLAB for Engineers and Scientists provides a concise, balanced overview of MATLAB's functionality that facilitates independent learning, with coverage of both the fundamentals and applications. The essentials of MATLAB are illustrated throughout, featuring complete coverage of the software's windows and menus. Program design and algorithm development are presented clearly and intuitively, along with many examples from a wide range of familiar scientific and engineering areas. This is an ideal book for a first course on MATLAB or for an engine
