**EME5 Introduction to Computer Programming for Engineering Applications**

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## Topics

1. Introduction to Computer Hardware and Software (Chapter 1)
2. Getting Started (Chapter 2)
3. Scalar Types, Number Systems, and Input/Output (Chapter 3)
4. Operators and Expressions (Chapter 4)
5. Statements and Control Flow (Chapter 5)
6. Functions and Introduction to Two-Dimensional Plotting Using **fplotxy()** and **fplotxyz()** (Chapter 6)
7. Preprocessing Directives (Chapter 7)
8. Storage Classes (Chapter 8)
9. Arrays and Introduction to Two-Dimensional Plotting Using **plotxy()** (Chapter 10)
10. Pointers (Chapter 11)
11. Characters and Strings (Chapter 12)
12. Structures and Enumerations (Chapter 13)
13. File Processing (Chapter 14)
14. Computational Arrays and Matrix Computations in Ch (Chapter 21)
15. Two- and Three-Dimensional Plotting (Chapter 20)
16. Introduction to MATLAB and Comparison Study with C/Ch (Chapter 23)
    - Comparison study of type-less versus typed languages. Style of MATLAB programming.
    - Variables and arrays in MATLAB
    - Matrix computation and linear algebra in MATLAB.
    - Operators in MATLAB.
    - Iterative and selection statements in MATLAB .
    - Formatted input and output in MATLAB .
    - File processing in MATLAB.
    - Two- and three-dimensional plotting in MATLAB.
    - Functions and function files (M-files) in MATLAB.
    - Functions using arrays in MATLAB.
17. Introduction to numerical analysis functions, some commonly used libraries and software packages in C/Ch/C++/MATLAB for applications in engineering and science as well as other advanced courses