

m files
for ALL MATLAB® Exercises
INSTRUCTOR RESOURCES

to accompany:

MATLAB®-Based
ELECTROMAGNETICS

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User's Manual for m files

for ALL MATLAB Exercises

in MATLAB®-Based Electromagnetics

(INSTRUCTOR RESOURCES on the Web)

This material, containing *m files on Instructor Resources for MATLAB®-Based Electromagnetics by B. Notaros*, available for download on Instructor Resources (denoted by IR in the text) for the book *MATLAB®-Based Electromagnetics*, provides MATLAB codes (m files) for all MATLAB exercises in the book, separated into 12 folders (chapter folders). MATLAB files are provided for literally all exercises: for those with TUTORIALS, those with HINTS, and those with no solutions or hints. Code listings in TUTORIALS, where they appear merged with the narratives of the solutions to exercises, are obtained directly from the corresponding m files provided here. All figures appearing in MATLAB exercises, including the snapshots of MATLAB movies, GUIs, etc., as well as all other numerical and textual results given in the exercises, are generated using the m files from these folders.

There are a total of about 560 m files – for 389 MATLAB exercises; some exercises have multiple m files, as their solutions consist of more than one function or the main program and a function, etc. Files with functions (written in MATLAB) have descriptive names, e.g., *bounceDiagram.m*. Files with main MATLAB programs are named according to the numeration/labeling of exercises: for instance, main program for *MATLAB Exercise 12.32* is in file *ME12_32.m*. So, the “recipe” for finding the m file for a given MATLAB exercise, or vice versa, is simple: (1) if the exercise features a main MATLAB program, find the m file with the name matching the exercise label (number) in the respective chapter folder; (2) in the case of a function exercise, look for the function name in the statement of the exercise and find the m file with that name. For convenience, however, the names of respective m files are explicitly specified in all MATLAB exercises in the book.

Files for graphical user interfaces (GUIs) built in MATLAB are stored in separate folders (sub-folders) named after the corresponding MATLAB exercises, within the respective chapter folders. For example, files for the GUI from *MATLAB Exercise 2.13* are in folder *ME2_13(GUI)* [more precisely, in *Chapter_2\ME2_13(GUI)*]. A GUI folder always includes the GUI control function file (e.g., *capCalc1.m*) and the GUI layout file with the same name and fig extension (*capCalc1.fig*). It may also include one or more other functions (m files), for specific calculations or other tasks. Some GUI folders contain a number of png files (e.g., *coaxcable.png*), with pictures (drawings) of structures (previously created by another computer program for drawing), which are imported in the GUI control function.

The provided codes are run in MATLAB in a standard fashion: by selecting, opening, and running – in MATLAB – the appropriate m file in the appropriate chapter (or GUI) folder.

This material on IR, *m files on Instructor Resources for MATLAB®-Based Electromagnetics by B. Notaros*, including all 12 chapter folders with m files, is meant *only for instructors*

adopting this book. In addition to serving as a complement to the *Instructor's Solutions Manual* for the book, which is also available on IR, it provides an invaluable resource for lectures, recitations, and class demonstrations. Namely, any and all MATLAB codes for the current class topic, including codes for movies, calculators, GUIs, numerical solvers, data processors and tabulators, diagram and figure plotters, conceptual demonstrators, etc., can readily be run and discussed, in support of a theoretical presentation or as a problem session.

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