Octave and MATLAB for Engineering Applications

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About This Book

These lecture notes grew out of lectures at the Bern University of Applied Sciences (BFH). The main goal is to familiarize students with *Octave* or MATLAB, to be used to solve engineering problems. It not an introduction to programming, using MATLAB/*Octave*. It is assumed that the students are familiar with basic programming techniques, using a procedural programming language. The key part this book is chapter, 3 with many engineering applications of MATLAB and *Octave*.

The notes consist of three chapters.

- The first chapter is an introduction to the basic *Octave*/MATLAB commands and data structures. The goal is to provide simple examples for often used commands and point out some important aspects of programming in *Octave* or MATLAB. The students are expected to work through all of these sections. Then they should be prepared to use *Octave* and MATLAB for their own engineering projects.
- The second chapter presents a few commands for elementary statistics, illustrated by short demo codes. This chapter was never presented in class, but handed to the students as an aid to perform elementary statistical tasks.
- The third chapter consists of applications of MATLAB/*Octave*. Most topics were part of a Bachelor or Master thesis project at BFH-TI (Bern University of Applied Sciences, School of Engineering and Computer Science). In each section the question or problem is formulated and then solved with the help of *Octave*/MATLAB. This small set of sample applications with solutions should help you to solve **your** engineering problems. In class I usually selected a few of those topics and presented them to the students. As an essential part of the class the students had to select, formulate and solve a problem of their own.

First versions of these notes were based on *Octave* only, but by now (almost) all codes works with MATLAB too. Wherever possible I attempted to provide code working with both *Octave* and MATLAB . Most of the codes are available at ???

There is no such thing as "*the perfect lecture notes*" and improvements are always possible. I welcome feedback and constructive criticism. Please let me know if you use/like/dislike the lecture notes. Please send your observations and remarks to Andreas.Stahel@gmx.com .

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