Using MATLAB® as a tool for focusing the lab work in engineering courses

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PROBLEM STATEMENT

Engineering courses at University require a number of heterogeneous lab devices to be programmed by the students in really diverse forms.

It takes **too long** to teach all the diversity of programming tools to the students of such a subject, consumed from the time that should be better employed on teaching the theoretical and practical concepts.

APPROACH

*Do all the software programming of lab devices through **MATLAB®***

ADVANTAGES

-Easy to program and debug by students.
-Very powerful for analysing and representing graphically lab-collected experimental data.
-Several MATLAB®-like open-source and free alternatives.
-Easy to extend for connect to diverse equipment (by an expert programmer professor).
-Can be taught with low effort and with good programming style (if some features are not included in the teaching).
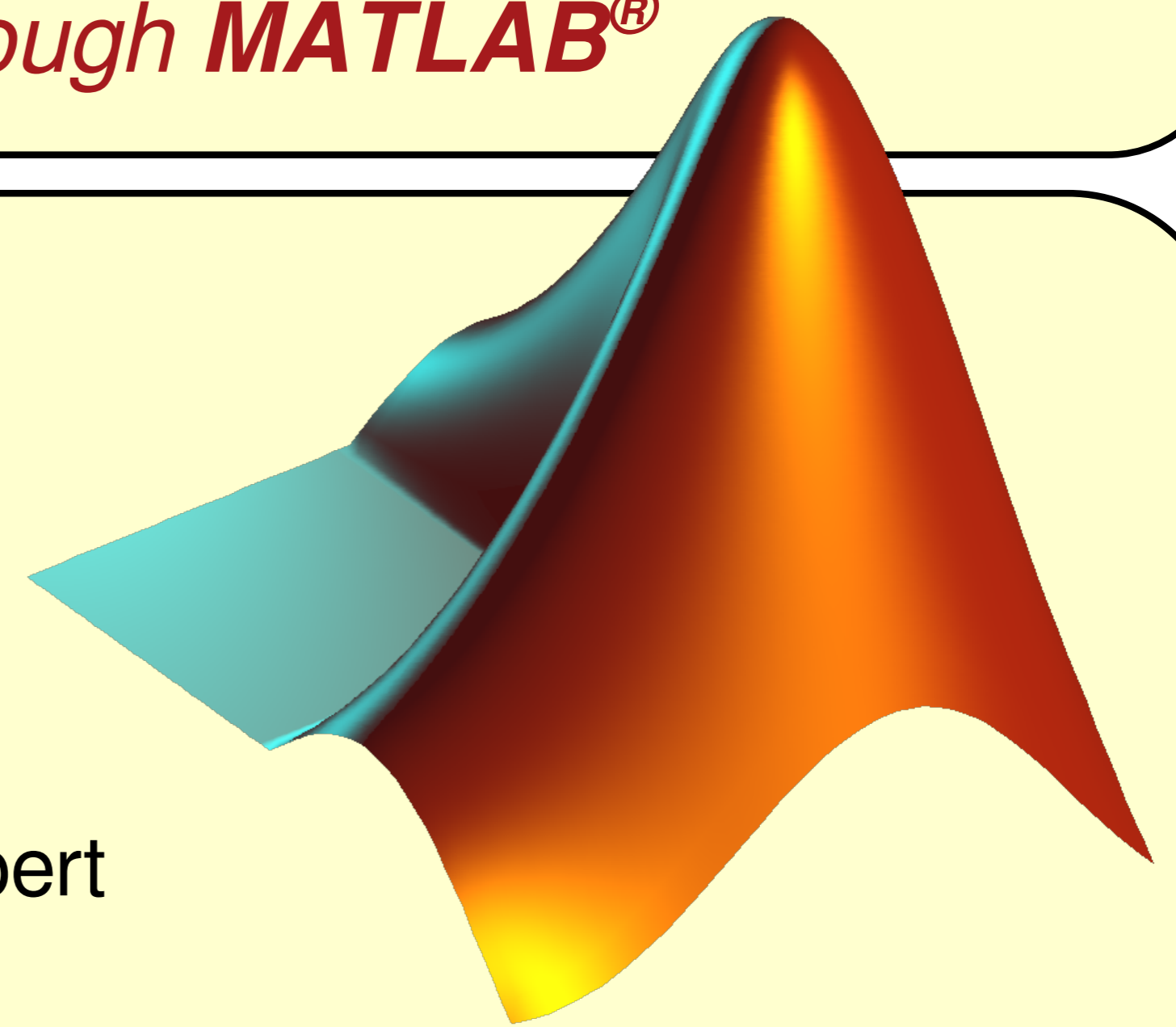
RESULTS

-Implemented in 4 different subjects of 4 degree/master programmes; w. only 4 hs seminars.
-Three different hardware devices have been connected to MATLAB® in short times:

Data acquistion card: 1 week

Manipulator arm: 1 month

Mobile robot: 1 week