

SysArch2006 Midterm Report

- Make a SCILAB program to measure Symbol Error Rate vs S/N ratio in 1K OFDM with QPSK modulation
- Make Symbol Error Rate vs SN ratio
 - Vertical: SER in log scale
 - Horizontal: SN ratio 0dB, 1dB ... to 10dB
- Your report should contain your program and measured data in Graph.
- Dead Line : June End 2006
- Please submit to TA: Phuong
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SCILAB

Glance and demonstration

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Content

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Main features

- Free software
- For calculation numerical, programming, simulation and graphics environment.
- Base on MATRIX (like MATLAB)
- SCILAB can be run on UNIX, Linux, Windows(9X/2000/XP), etc.
- Latest version: SCILAB 4.0

How to install

- For the binary version, the minimum volume for running SCILAB is about 40 MB when decompressed.
- The simplest way to install and use SCILAB is download [scilab-4.0.exe](#), run and follow its steps.



How to use:

Command lines

- enter a command line by typing after the prompt

```
-->a=1;

-->A=2;

-->a+A
ans =

    3.

-->>//Two commands on the same line

-->c=[1 2];b=1.5
b =

    1.5

-->w=rand(3,4)
w =

    0.7263507    0.2320748    0.8833888    0.9329616
    0.1985144    0.2312237    0.6525135    0.2146008
    0.5442573    0.2164633    0.3076091    0.312642

-->w($,$)
ans =

    0.312642

-->w($,:)
ans =

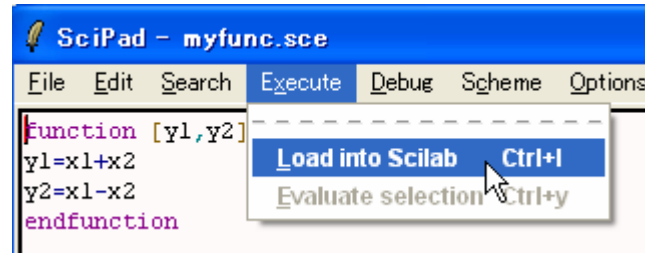
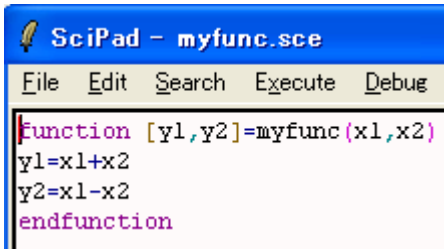
    0.5442573    0.2164633    0.3076091    0.312642
```

★Hints:

- Scilab is case-sensitive.
- // is not interpreted (it is a comment line)
- % is used in front of defined keywords (e.g. %e = 2.718)
- The \$ symbol stands for the last row or last column index of a matrix or vector.
- The colon symbol stands for “all rows” or “all columns”

How to use: Editor

- Programming: You can open SCIPAD to write your program



```
-->[a b]=myfunc(7,8);
```

```
-->[a b]
ans =
```

```
15. - 1.
```

★ Hints:

- When save file, remember write filename + extension (*.sce , *.sci)
- .sce files are executed
- .sci files are loaded to be used when we need them

How to use: Scicos

- Scicos is a SCILAB toolbox, having function as Simulation tool.

The screenshot displays the Scicos interface within the scilab-4.0 environment. The main window shows a diagram with a 'sinusoid generator' block connected to a clock block, which in turn feeds into a plotter block. The plotter displays a sine wave.

Key interface elements include:

- Menu Bar:** File, Edit, Preferences, Control, Editor, Applications, Diagram, Edit, Simulate, Object, Misc, stop.
- Applications Menu:** Scicos, EditGraph, m2sci, Browser Variables.
- Palettes Menu:** Context, Smart Move, Move, Copy, Copy Region, Replace, Align, Link, Delete, Delete Region, Add new block, Flip, Undo, Pal editor.
- Choose a Palette Dialog:** Lists various block categories such as Sources, Sinks, Linear, Non_linear, Events, Threshold, Others, Branching, Electrical, ThermoHydraulics, OldBlocks, and DemoBlocks.
- Set Block properties Dialog:** A table for configuring simulation parameters:

Parameter	Value
Final integration time	30
Realtime scaling	0
Integrator absolute tolerance	0.0001
Integrator relative tolerance	0.000001
Tolerance on time	1.0000-10
max integration time interval	100001
solver O(bode)/100(dart)	0
maximum step size (0 means no limit)	0
- Simulate Menu:** Setup, Compile, Eval, Debug Level, Run.