Lab Work 02

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Chapter 1

Theoretical part

1.1 Circuit calculation

In Laboratory work 1 we modeled a circuit using gEDA, ngspice and some advanced students also used QUCS.

My student number is 181ADB018, therefore I used:

$$V1 = 018/10 = 1.8[V] \tag{1.1}$$

$$R1 = 1 + 1 = 2\Omega \tag{1.2}$$

$$R2 = 8 + 1 + 9\Omega \tag{1.3}$$

As for the mathematical calculations we did two:

$$U_{R1} = \frac{R1}{R1 + R2} * V1 \tag{1.4}$$

$$U_{R2} = \frac{R2}{R1 + R2} * V1 \tag{1.5}$$

V1	1.8
R1	2
R2	9
U_{R1}	0.327273
U_{R2}	1.472727

Figure 1.1: Values of circuit calculations

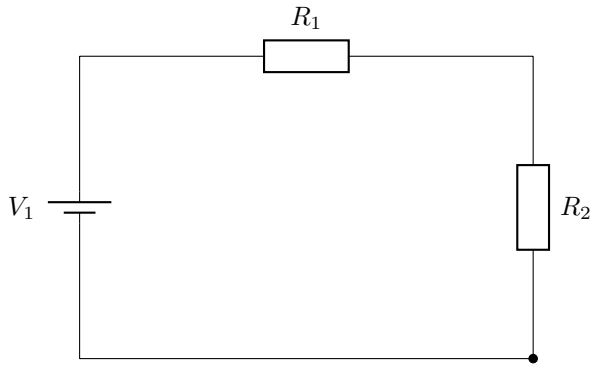

Figure 1.2: Circuit diagram

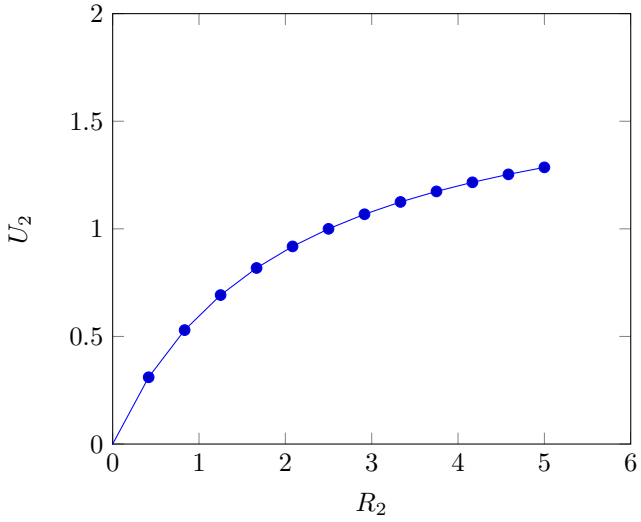

Figure 1.3: Function plot U(R2) = f(R2)

Chapter 2

Practical part

2.1 Work with gEDA programs

2.1.1 Work with gschem

The next image is a screenshot of the circuit gschem produced.

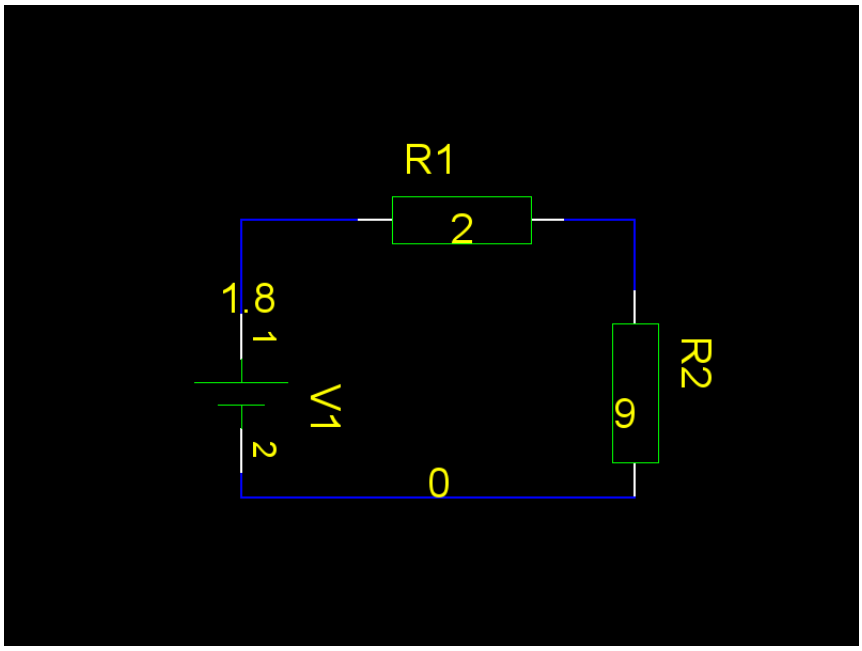

Figure 2.1: Image of circuit.png

2.1.2 Work with gnetlist

```
* Spice netlister for gnetlist
V1 2 0 1.8
R1 2 1 2
R2 1 0 9
.END
```

2.1.3 Work with ngspice

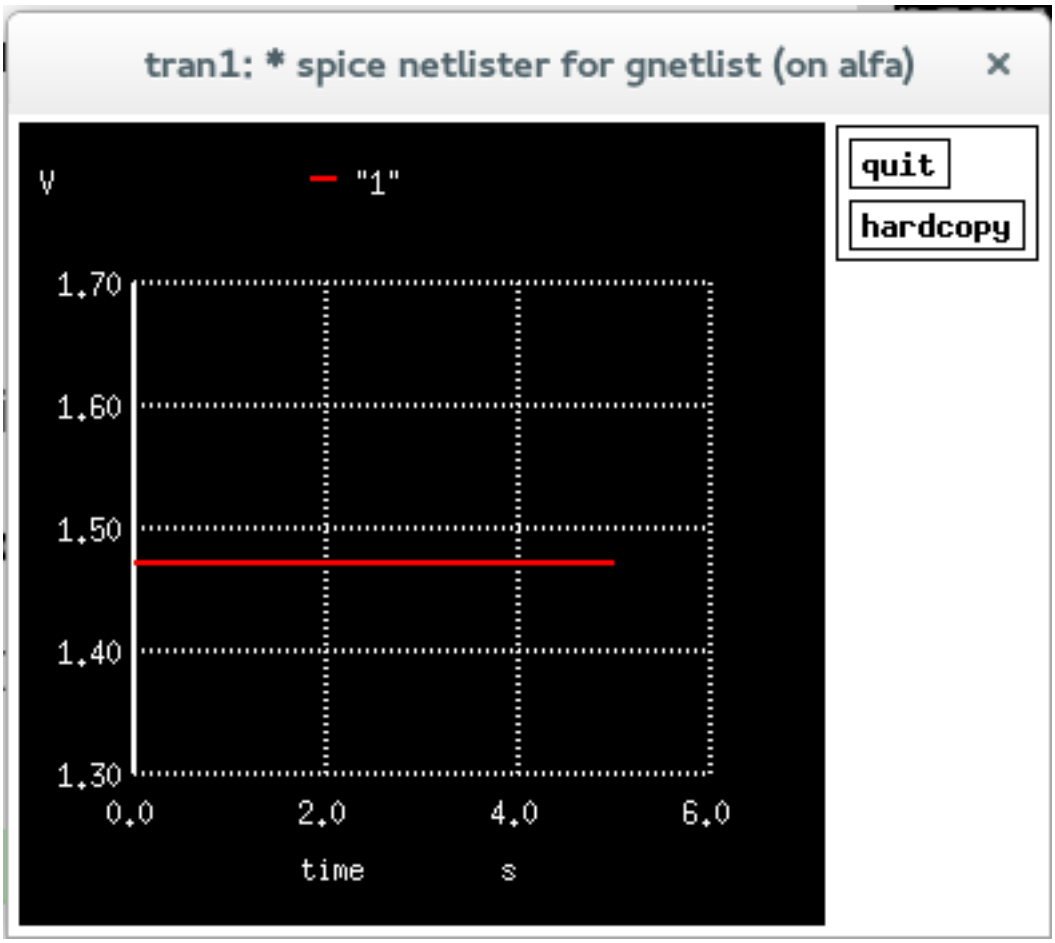

Figure 2.2: Image of 11.png, first plot

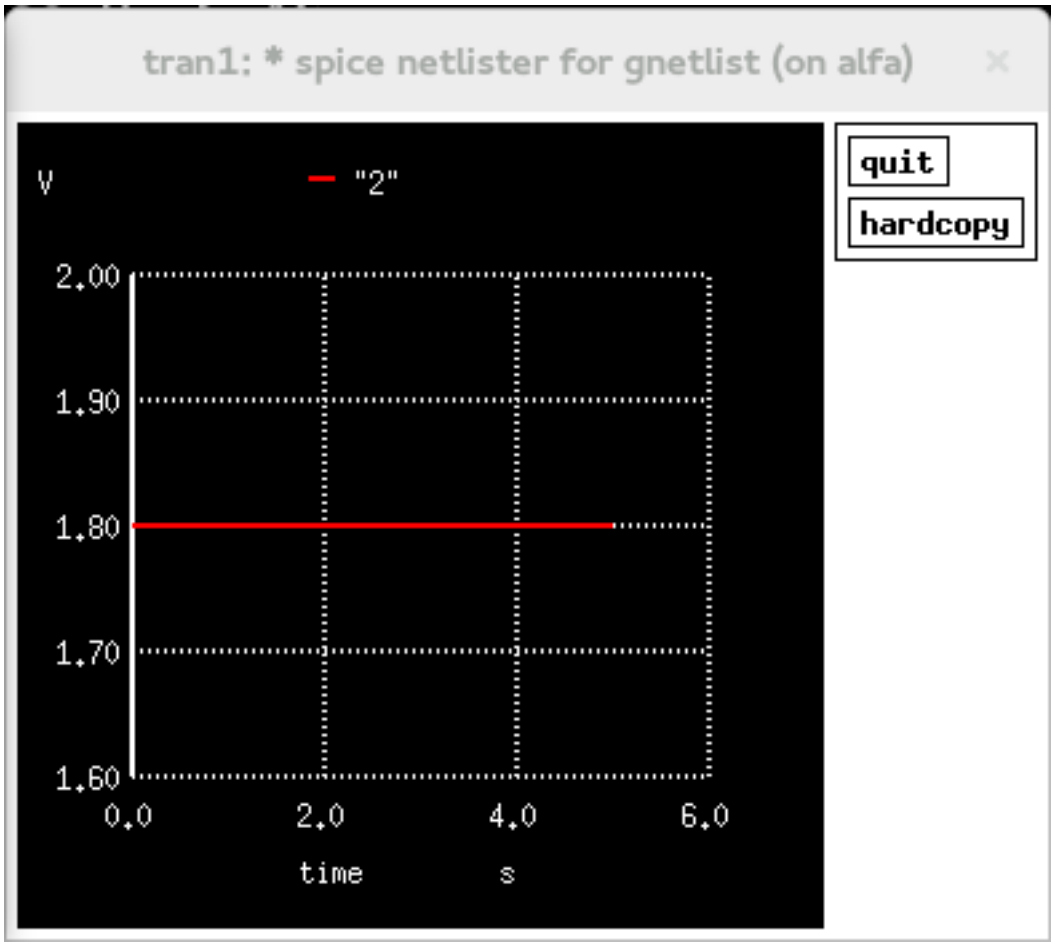

Figure 2.3: Image of 12.png, second plot

2.2 Work with QUCS programs

I am not advanced enough to work with QUCS. I did not do this part in P01.

Bibliography

[1] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley, Reading, Massachusetts, 1993.

[2] Albert Einstein. *Zur Elektrodynamik bewegter Körper*. (German) [*On the electrodynamics of moving bodies*]. Annalen der Physik, 322(10):891921, 1905.

[3] Knuth: Computers and Typesetting,
`http://www-cs-faculty.stanford.edu/~uno/abcde.html`