

Vienkru elektrisku shmu modelana

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Chapter 1

Teortisk daa

1.1 des aprins

171REB165

[scale=1, every node/.style=transform shape] (0,2) to[V=V1,] (0,0) (0,2)
to[R=R1, -] (4,2) (4,2) to[R=R2, -] (4,0) (0,0) to[short, -] (4,0) ;

$$V1 = 165/10 = 16.5 \text{ V}$$

$$R1 = 6+1 = 7 \text{ Ohm}$$

$$R2 = 5+1 = 6 \text{ Ohm}$$

Lai aprint spriegumu uz R2 vajag izmantot sprieguma daltja formulu. [1] [2]

$$I = V1/(R1+R2) = 16.5/(6+7) = 1.27 \text{ A}$$

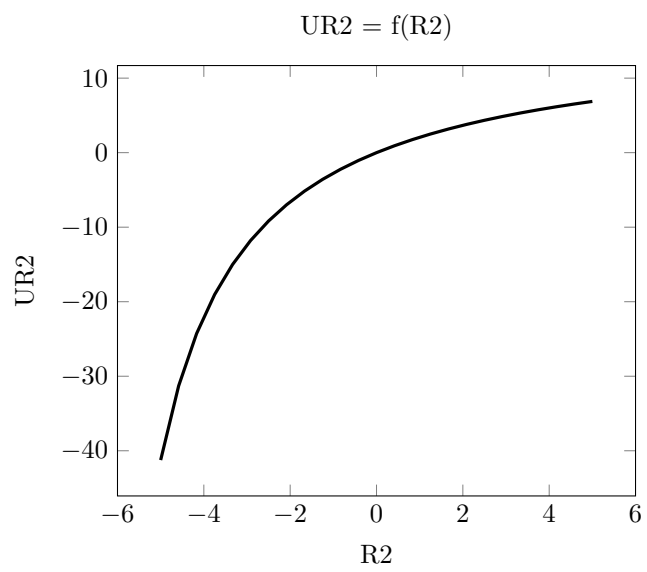
$$UR1 = I*R1 = 7*1.27 = 8.88 \text{ V}$$

$$UR2 = I*R2 = 6*1.27 = 7.61 \text{ V}$$

No m apriniem es izveidoju tabulu ar rezulttiem (1.1)

R1	7 Ohm
R2	6 Ohm
V1	16.5 V
UR1	8.88 V
UR2	7.61 V

Table 1.1: des elementu spriegumi un vrtbas



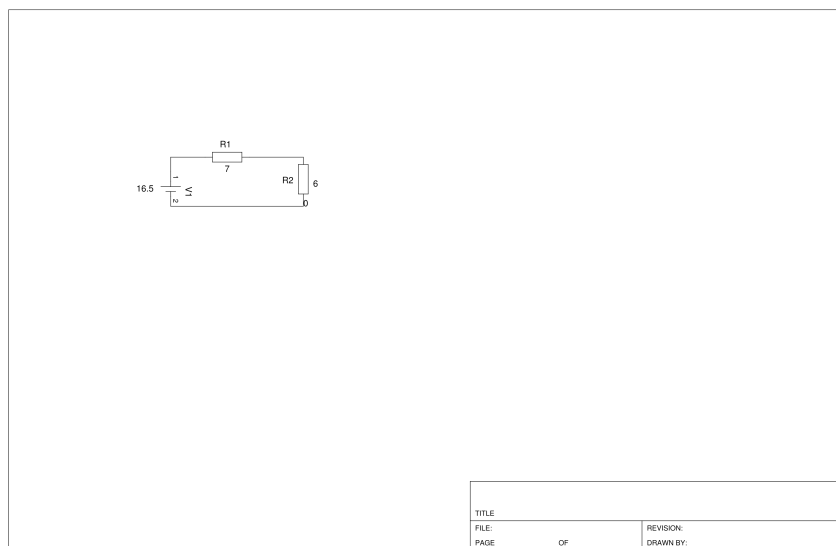


Figure 2.1: Elektrisk shma no GEDA

Chapter 2

Praktisk daa

2.1 Darbs ar GEDA programmm

2.1.1 darbs ar gskem

Ar GEDA komandu gskem es izveidoju vienkro shmu (2.1)

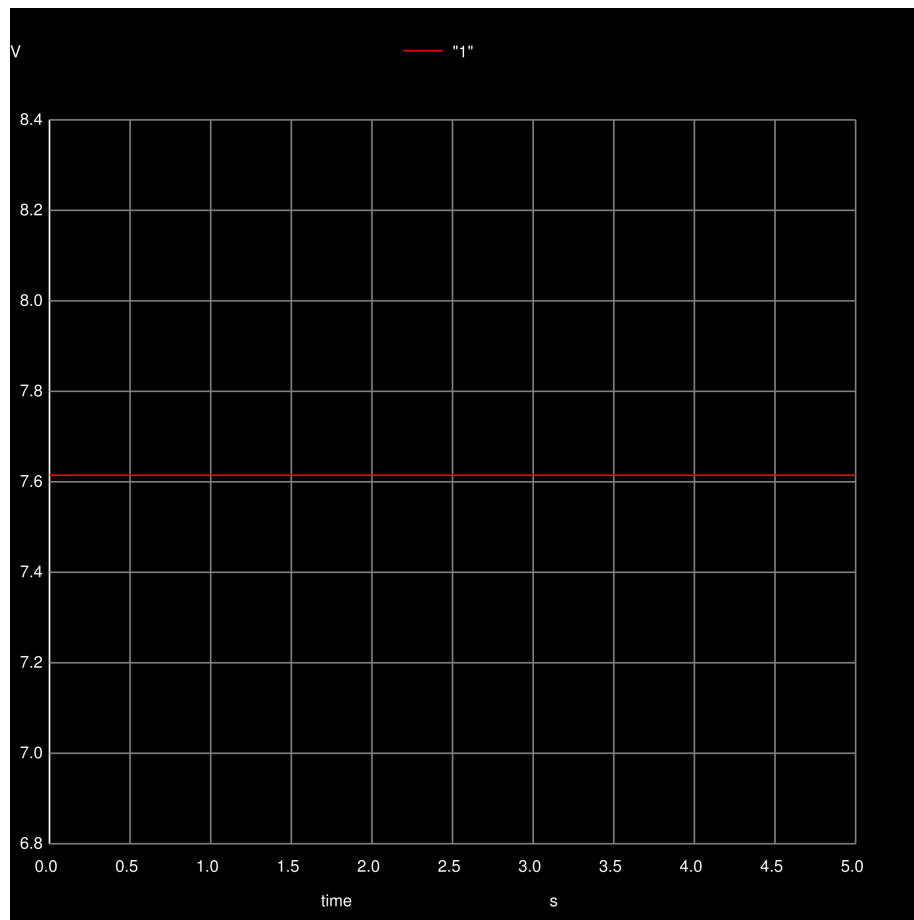


Figure 2.2: Grafiks no ngspice (1)

2.1.2 darbs ar gnetlist

```
* Spice netlister for gnetlist
V1 2 0 16.5
R2 0 1 6
R1 2 1 7
.END
```

2.1.3 darbs ar ngspice

Ar ngspice es izveidoju divus grafikus. Att. (2.2) un (2.3)

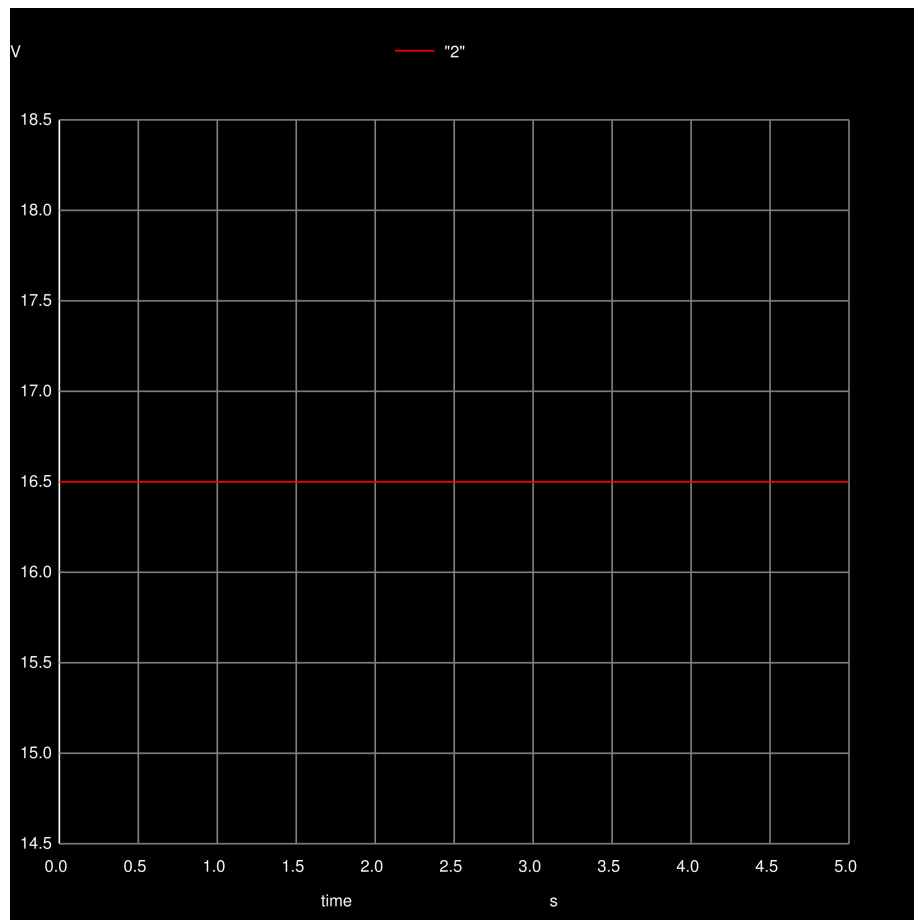


Figure 2.3: Grafiks no ngspice (2)

2.2 Darbs ar QUCS programmu

2.2.1 Principa shma

Shma ar visiem elementiem, R2 ir aizvietots ar x lai to izmantot k argumentu Parameter Sweep analz. (Att. 2.4)

2.2.2 Tabula un grafiks

K ir redzams no grafika spriegums uz R2 mains proporcionli R2 pretestbas izmaiiai pret kopjo pretestbu. (Att. 2.5)



Figure 2.4: Principla shma

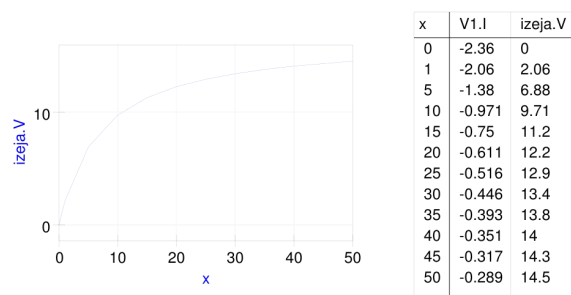


Figure 2.5: Tabula un grafiks

Bibliography

- [1] Andrejs Strauts. Elektrotehnikas teortiskie pamati, lekciju konspekts. Rga, RTU, 2008, -197 lpp.
- [2] Krlis Brvkalns. u teorija. Vadonis u teorijas studijm: praktisks nodarbības, laboratorijas darbi, MatLab programmas, PSpice pielietojums. Rga, RTU, 2008, - 93 lpp.