

ELEKTROTEHNIČKI FAKULTET U BEOGRADU
KATEDRA ZA ELEKTRONIKU

ENERGETSKA ELEKTRONIKA
LABORATORIJSKE VEŽBE

VEŽBA BROJ 2:
BUCK KONVERTOR

IME I PREZIME	BR. INDEKSA	GRUPA	OCENA
1.			
2.			

DATUM _____

VREME _____

DEŽURNI U LABORATORIJU _____

D.1.**Tabela 2.1.**

$f_s = 20 \text{ kHz}, D = 0,5$				
$I_{OUT} \text{ [mA]}$	$V_{OUT} \text{ [V]}$	$I_{IN} \text{ [mA]}$	$V_{IN} \text{ [V]}$	$\eta \text{ [%]}$

$$I_{OUT \text{ CCM / DCM}} = \underline{\hspace{2cm}}$$

$$V_{OUT \text{ CCM / DCM}} = \underline{\hspace{2cm}}$$

D.2.**Tabela 2.2.**

$f_s = 50 \text{ kHz}, D = 0,5$				
$I_{OUT} \text{ [mA]}$	$V_{OUT} \text{ [V]}$	$I_{IN} \text{ [mA]}$	$V_{IN} \text{ [V]}$	$\eta \text{ [%]}$

$$I_{OUT \text{ CCM / DCM}} = \underline{\hspace{2cm}}$$

$$V_{OUT \text{ CCM / DCM}} = \underline{\hspace{2cm}}$$

D.3.**Tabela 2.3.**

$f_s = 100 \text{ kHz}, D = 0,5$				
$I_{OUT} \text{ [mA]}$	$V_{OUT} \text{ [V]}$	$I_{IN} \text{ [mA]}$	$V_{IN} \text{ [V]}$	$\eta \text{ [%]}$

 $I_{OUT \text{ CCM / DCM}} = \underline{\hspace{2cm}}$
 $V_{OUT \text{ CCM / DCM}} = \underline{\hspace{2cm}}$
D.4.**Tabela 2.4.**

$D = 0,5, I_{OUT} = 1 \text{ A}$							
$f_s \text{ [kHz]}$	$I_{OUT} \text{ [mA]}$	$V_{OUT} \text{ [V]}$	$I_{IN} \text{ [mA]}$	$V_{IN} \text{ [V]}$	$\eta \text{ [%]}$	$\Delta i_{L \text{ p-p}} \text{ [mA]}$	<i>mode</i> (CCM/DCM)
20							
30							
40							
50							
60							
70							
80							
90							
100							

D.5.**Tabela 2.5.**

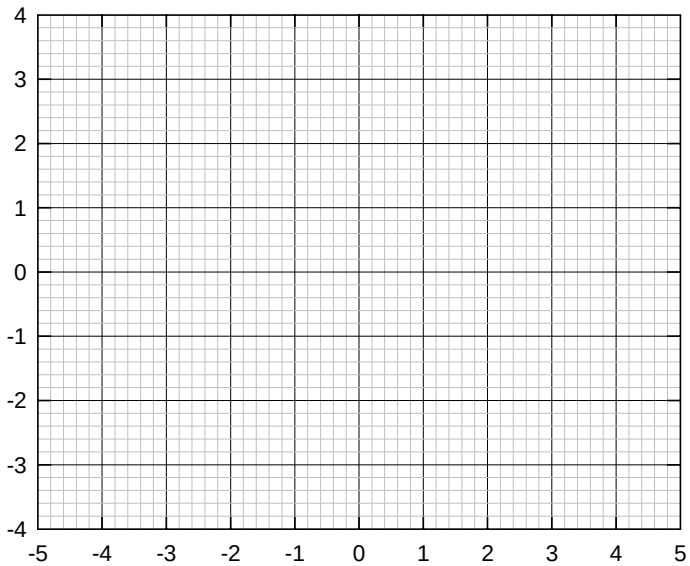
$f_s = 100 \text{ kHz}, R = 10 \Omega$				
D	$V_{OUT} \text{ [V]}$	$V_{IN} \text{ [V]}$	$M = V_{OUT}/V_{IN}$	<i>mode</i> (CCM/DCM)
0,2				
0,3				
0,4				
0,5				
0,6				
0,7				
0,8				

D.7.

Tabela 2.7.

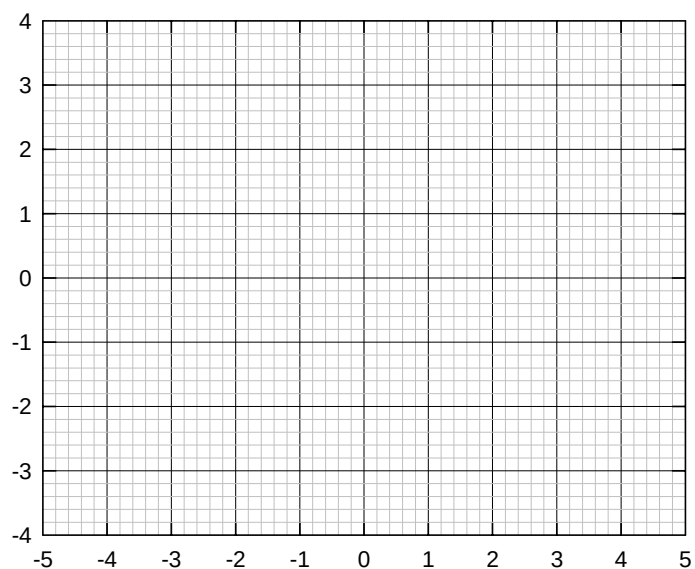
$f_s = 40\text{ kHz}$						
$I_{OUT}\text{ [mA]}$	D	$V_{OUT}\text{ [V]}$	$I_{IN}\text{ [mA]}$	$V_{IN}\text{ [V]}$	$\eta\text{ [%]}$	$mode$ (CCM/DCM)

D.8.



Slika 2.3. v_c , CCM

podela naponske ose _____
podela vremenske ose _____



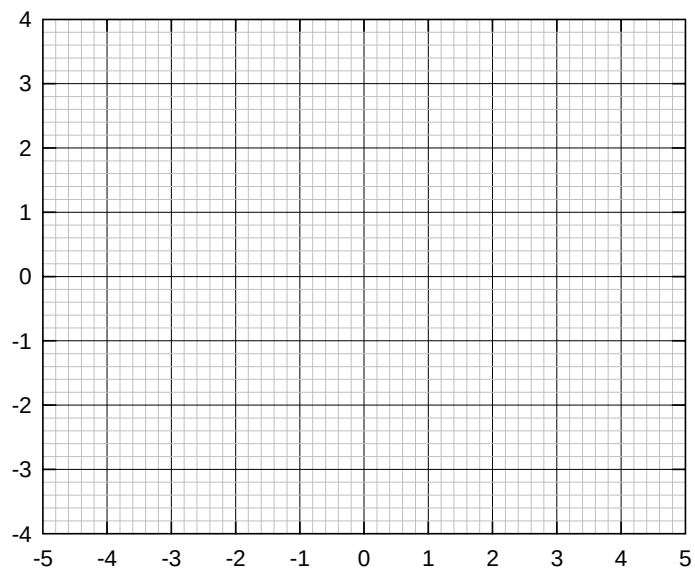
Slika 2.4. i_L , CCM

podela strujne ose _____

podela vremenske ose _____

$esr =$ _____

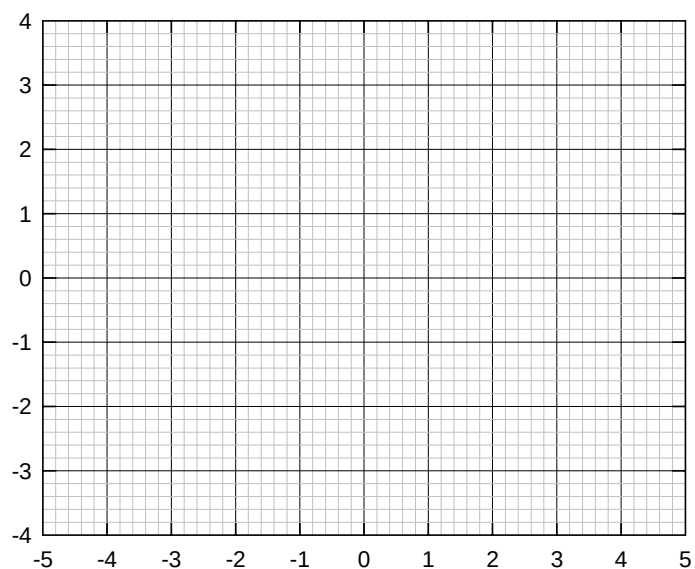
D.9.



Slika 2.5. v_C , DCM

podela naponske ose _____

podela vremenske ose _____



Slika 2.6. i_L , DCM

podela strujne ose _____

podela vremenske ose _____

$I_{OUT} =$ _____, $C =$ _____

D.10.

Tabela 2.8.

$I_{OUT} = 500 \text{ mA}$			
$I_0 \text{ [mA]}$	$v_D(I_0) \text{ [mV]}$	$I_1 \text{ [mA]}$	$v_D(I_1) \text{ [mV]}$
$V_D =$ _____		$R_D =$ _____	
$I_{OUT} = 1 \text{ A}$			
$I_0 \text{ [mA]}$	$v_D(I_0) \text{ [mV]}$	$I_1 \text{ [mA]}$	$v_D(I_1) \text{ [mV]}$
$V_D =$ _____		$R_D =$ _____	

Napomena:

$$V_D = \frac{I_1 v_D(I_0) - I_0 v_D(I_1)}{I_1 - I_0}$$

$$R_D = \frac{v_D(I_1) - v_D(I_0)}{I_1 - I_0}$$