

EC2272 ANÁLISIS DE CIRCUITOS II - FORMULARIO N° 2

INDUCTORES ACOPLADOS Y TRANSFORMADORES

INDUCTORES ACOPLADOS	TRANSFORMADOR IDEAL 1:n	
$V_1 = j\omega L_1 I_1 \pm j\omega M I_2$	$V_2 = \pm n V_1$	$Z_1 = \frac{Z_2}{n^2}$
$V_2 = j\omega L_2 I_1 \pm j\omega M I_1$	$I_2 = \mp I_1/n$	

POTENCIA EN RSP (CIRCUITOS MONOFÁSICOS)

P		Q		S	
$\frac{V I}{2} \cos \phi_z$	$V_{ef} I_{ef} \cos \phi_z$	$\frac{V I}{2} \sin \phi_z$	$V_{ef} I_{ef} \sin \phi_z$	$\frac{V I^*}{2}$	$V_{ef} I_{ef}^*$
$\frac{I^2 R}{2}$	$I_{ef}^2 R$	$\frac{I^2 X}{2}$	$I_{ef}^2 X$	$\frac{I^2 Z}{2}$	$I_{ef}^2 Z$
$\frac{1}{2} \left(\frac{V}{ Z } \right)^2 R$	$\left(\frac{V_{ef}}{ Z } \right)^2 R$	$\frac{1}{2} \left(\frac{V}{ Z } \right)^2 X$	$\left(\frac{V_{ef}}{ Z } \right)^2 X$	$\frac{1}{2} \frac{V^2}{Z^*}$	$\frac{V_{ef}^2}{Z^*}$
Compensación del factor de potencia					
$\phi_{comp} = \cos^{-1}(fp_{comp})$			$C = \frac{Q_L - P \tan \phi_{comp}}{\omega V_{ef}^2}$		

CIRCUITOS TRIFÁSICOS

Generador Y	Sistema Y-Y	Sistema Y-Δ
$V_{bn} = V_{an} / -120^\circ$	$Z_{eq} = Z_{lín} + Z_F$	$Z_Y = Z_\Delta / 3$
$V_{cn} = V_{an} / +120^\circ$	$I_{an} = V_{an} / Z_{eq}$	$V_{AB} = \frac{V_{ab} Z_Y}{Z_{lín} + Z_Y}$
$V_{ab} = \sqrt{3} V_{an} / +30^\circ$	$I_{bn} = I_{an} / -120^\circ$	$I_{AB} = \frac{V_{AB}}{Z_\Delta}$
$V_{bc} = V_{ab} / -120^\circ$	$I_{cn} = I_{an} / 120^\circ$	$I_{BC} = I_{AB} / -120^\circ$
$V_{ca} = V_{ab} / +120^\circ$	$V_{AN} = I_{an} Z_F$	$I_{CA} = I_{AB} / +120^\circ$
	$V_{BN} = V_{AN} / -120^\circ$	$I_A = \frac{V_{an}}{Z_{lín} + Z_Y}$
	$V_{CN} = V_{AN} / +120^\circ$	$I_B = I_A / -120^\circ$
	$V_{AB} = \sqrt{3} V_{AN} / +30^\circ$	$I_C = I_A / +120^\circ$
	$V_{BC} = V_{AB} / -120^\circ$	$V_{aA} = I_A Z_{lín}$
	$V_{CA} = V_{AB} / +120^\circ$	$V_{bB} = V_{aA} / -120^\circ$
	$V_{aA} = I_{an} Z_{lín}$	$V_{cC} = V_{aA} / +120^\circ$
	$V_{bB} = V_{aA} / -120^\circ$	
	$V_{cC} = V_{aA} / +120^\circ$	
$S_{gen} = 3 V_{an} I_{an}^*$	$S_{carga} = 3 I_{an}^2 Z_F$	$S_{carga} = 3 I_A^2 Z_Y$
	$S_{lín} = 3 I_{an}^2 Z_{lín}$	$S_{lín} = 3 I_A^2 Z_{lín}$