

$$U_e = U_L + U_R + U_C$$

$$U_e = Z_L i + R i + Z_C i$$

$$i = C \frac{dU_s}{dt}$$

$$U_e = Z_L C \frac{dU_s}{dt} + R C \frac{dU_s}{dt} + Z_C C \frac{dU_s}{dt}$$

$$U_e = Z_L C p U_s + R C p U_s + Z_C C p U_s$$

$$U_e = L C p^2 U_s + R C p U_s + U_s$$

$$U_e = (L C p^2 + R C p + 1) U_s$$

$$\frac{U_s}{U_e} = \frac{1}{L C p^2 + R C p + 1}$$

$$\frac{U_s}{U_e} = \frac{1}{1 + j R C \omega - L C \omega^2}$$

avce

$$\omega_0 = \frac{1}{\sqrt{L C}}$$

$$\frac{2m}{\omega_0} = R C$$

$$m = \frac{R C}{2 \sqrt{L C}}$$

2) a -3db la frequence de coupure est 200hz

3) a 10hz le gain est G(db)= 20 log(AV)=0 donc AV=1 Us=Ue

A 2Khz le gain est de G(db)= 20 log(AV)=-40 donc log (AV)=-2 AV=0.01 Us = 0.01 Ue

