Module name: **Electrical Circuits 1**
Module ID: **IS-FEE-10070W**
Module type: **Class**
Semester: **winter 2024/2025**
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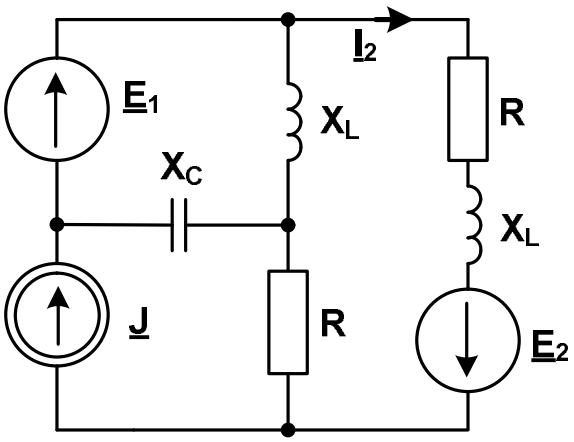
Class 13 (20.01.2025)

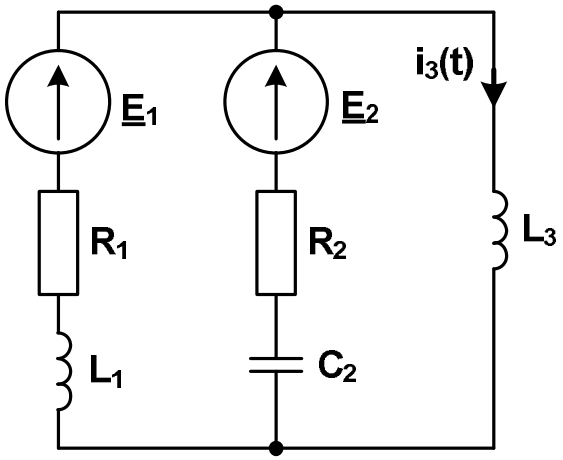
1. Determine the current $\underline{I}_2$ using **Thevenin's Theorem**.

   $R = 3\ \Omega$, $X_L = 4\ \Omega$, $X_C = 2\ \Omega$,
   $\underline{E}_1 = 3$ V, $\underline{E}_2 = j8$ V, $\underline{J} = 2$ A.



2. Determine the current $\mathbf{i_3(t)}$ using **Thevenin's Theorem**.

   $e_1(t)=200\sin(\omega t+45°)$ V,
   $e_2(t)=100\sqrt{2}\cos(\omega t)$ V,
   $R_1 = 20\ \Omega$, $X_{L1} = 80\ \Omega$, $R_2 = 40\ \Omega$,
   $X_{C2} = 40\ \Omega$, $X_{L3} = 20\ \Omega$.



3. Calculate an active power on $\underline{Z}_3$. Use **Thevenin's Theorem**.

   $\underline{E} = (10+j10)$ V, $\underline{J} = (2+j2)$ A,
   $X_{L1} = 20\ \Omega$, $X_{C1} = 10\ \Omega$, $R_2 = 10\ \Omega$,
   $X_{C2} = 10\ \Omega$, $\underline{Z}_3 = (10+j10)\ \Omega$