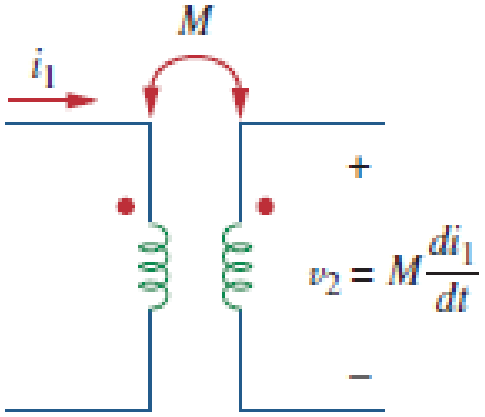
Module 3 : Magnetic Circuits 4 Hrs

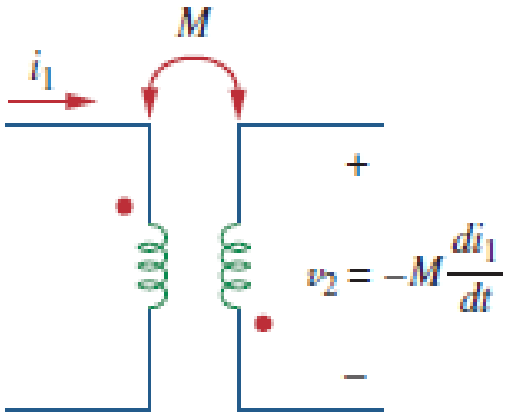
Electromagnetic Induction: **Self and mutual; Magnetically coupled circuits; Series and parallel magnetic circuits; Dot convention**

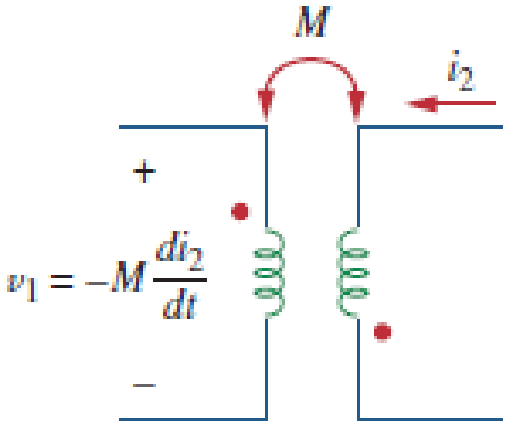
Course Outcome (CO2)

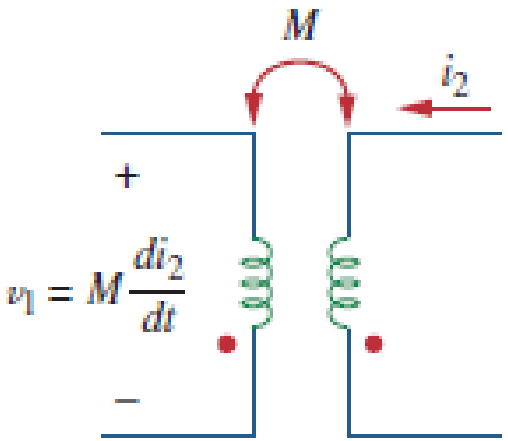
Analyze the parameters of magnetically coupled circuits and compare various types of electrical machines

Dot convention









Simple problems

The self inductance of a coil of 500 turns is 0.25 H. If 60% of the flux is linked with a second coil of 10500 turns, calculate

(a) the mutual inductance between the two coils

(b) emf induced in the second coil when current in the first coil changes at the rate of 100 A/sec.

Simple problems

The number of turns in a coil is 250. When a current of 2 A flows in this coil, the flux in the coil is 0.3 m wb. When this current is reduced to zero in 2 milliseconds, the voltage induced in a coil lying in the vicinity of coil is 63.75 V. The coupling coefficient is 0.75.

Find mutual inductance between both coils, self inductance of coil 2, number of turns in coil 2, flux linkage in coil 2