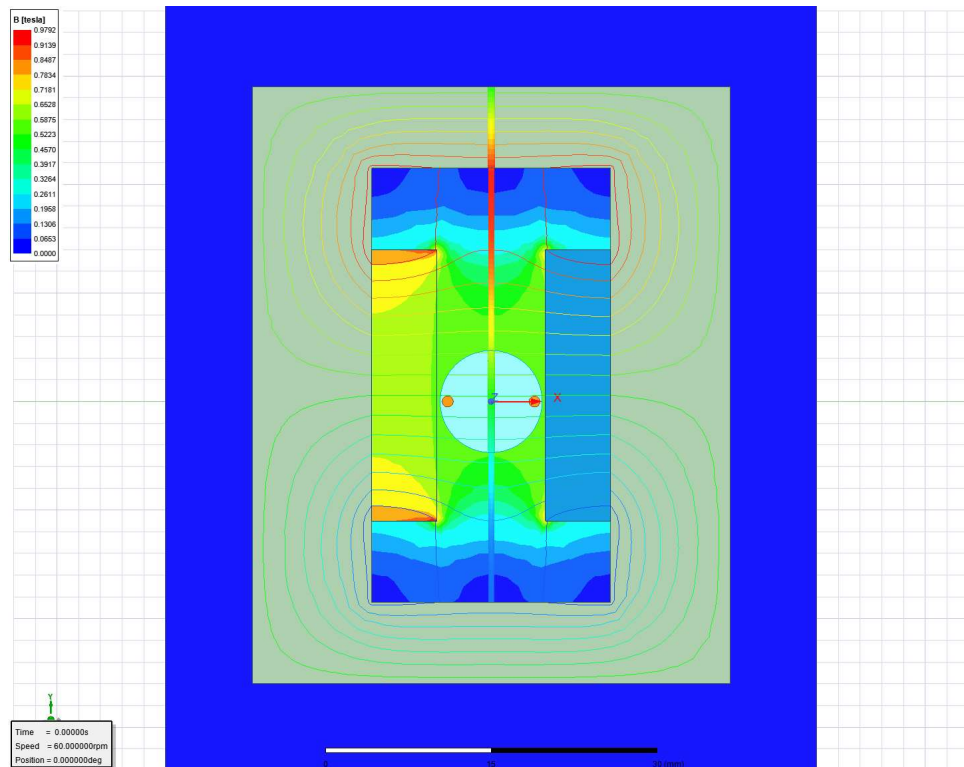
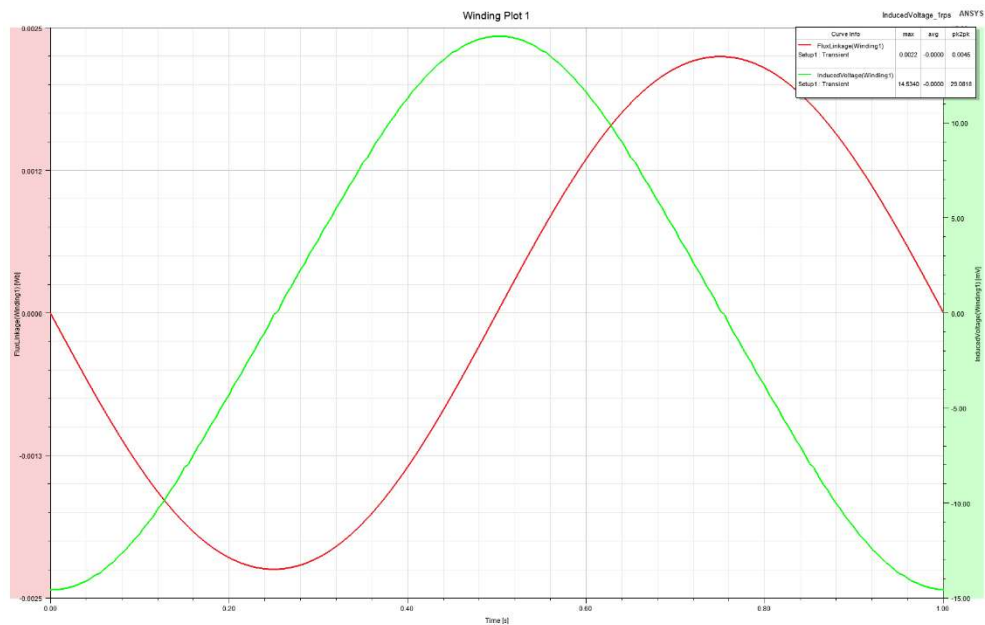


A.1 Flux lines and flux density distribution in the model at time = 0

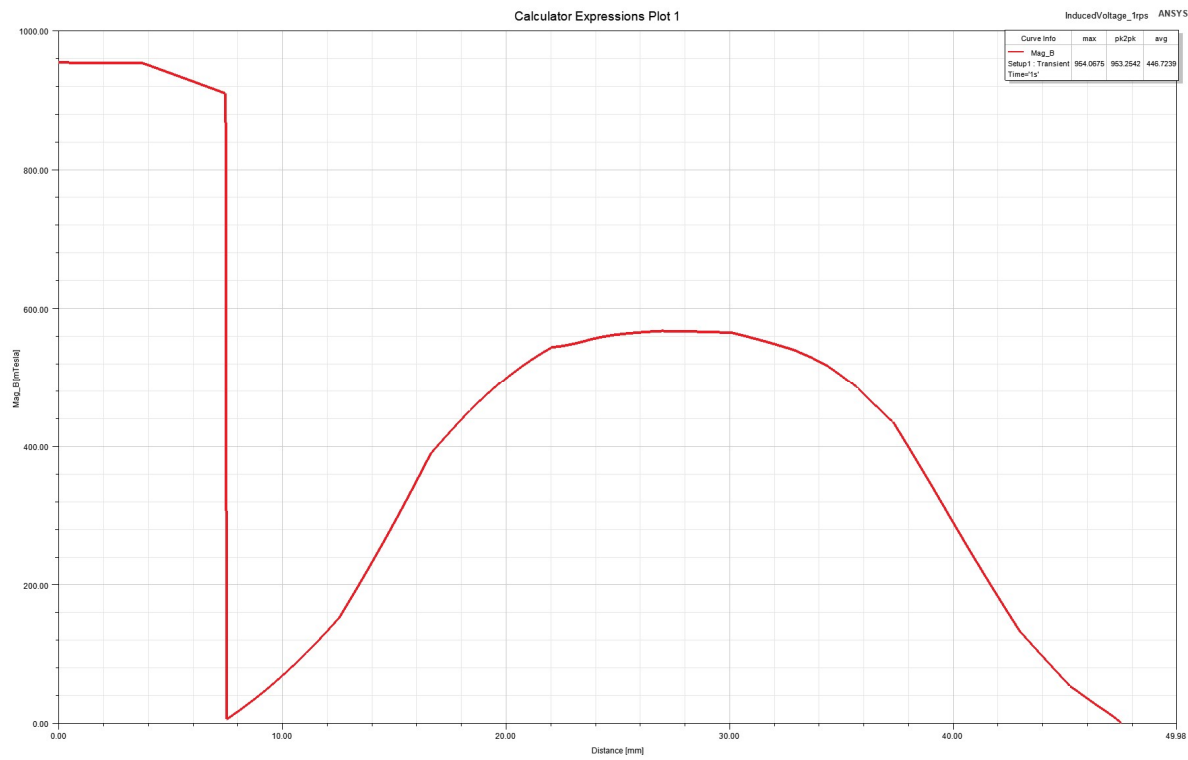


A.2 Induced Voltage and Flux linkage of the winding



From this graph we can determine that the frequency is 1Hz and the amplitude is 14.530 mV. Since frequency is one divide by the period, and a full period is 1 second, the frequency of the included voltage is 1 Hz.

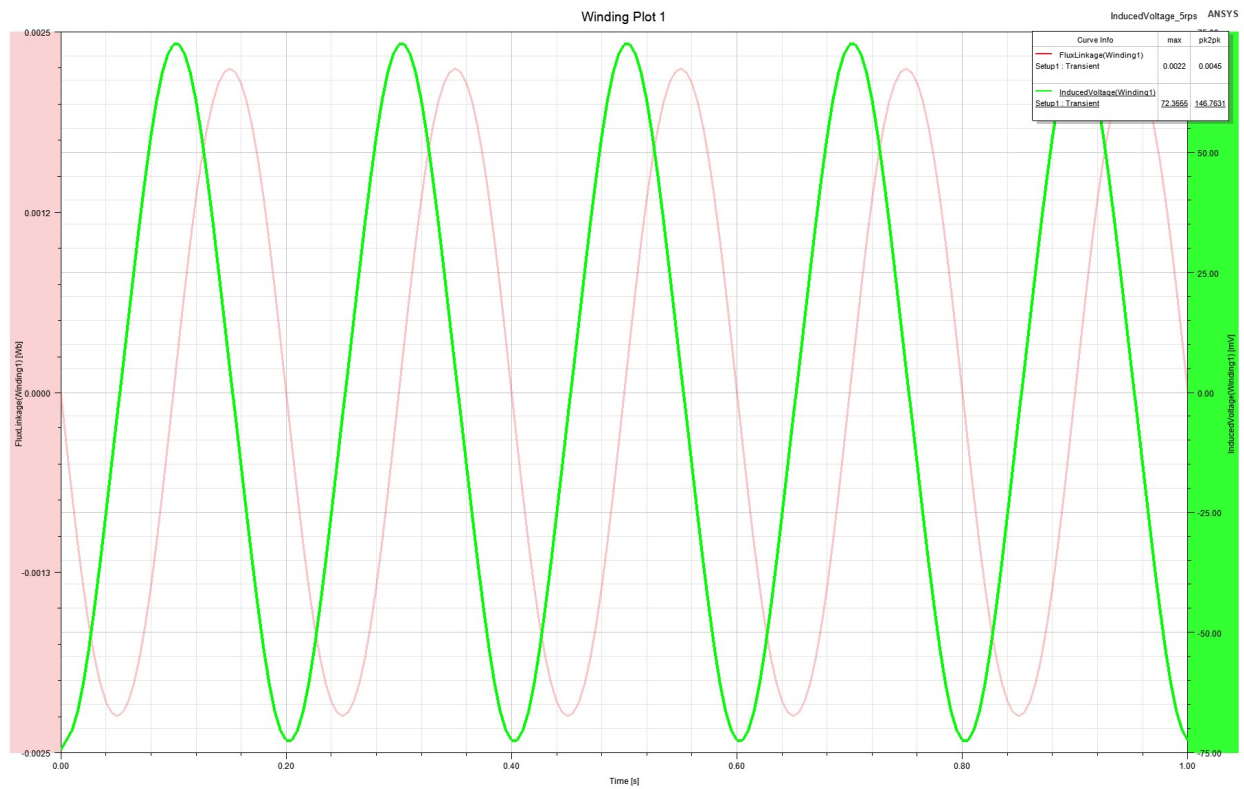
B.1 Flux density magnitude on vertical line through the center



Value	Calculated	Simulated
Induced Voltage	449.72mV	29.0818 [mV] (pk2pk)
Mag_B Average	n/a	446.7239 [mT]

$$\begin{aligned}
 e_{ind} &= 2vBl \\
 &= 2(1\text{rev/s})(446.7239\text{mT})(0.5\text{m}) \\
 &= 449.72\text{ mV}
 \end{aligned}$$

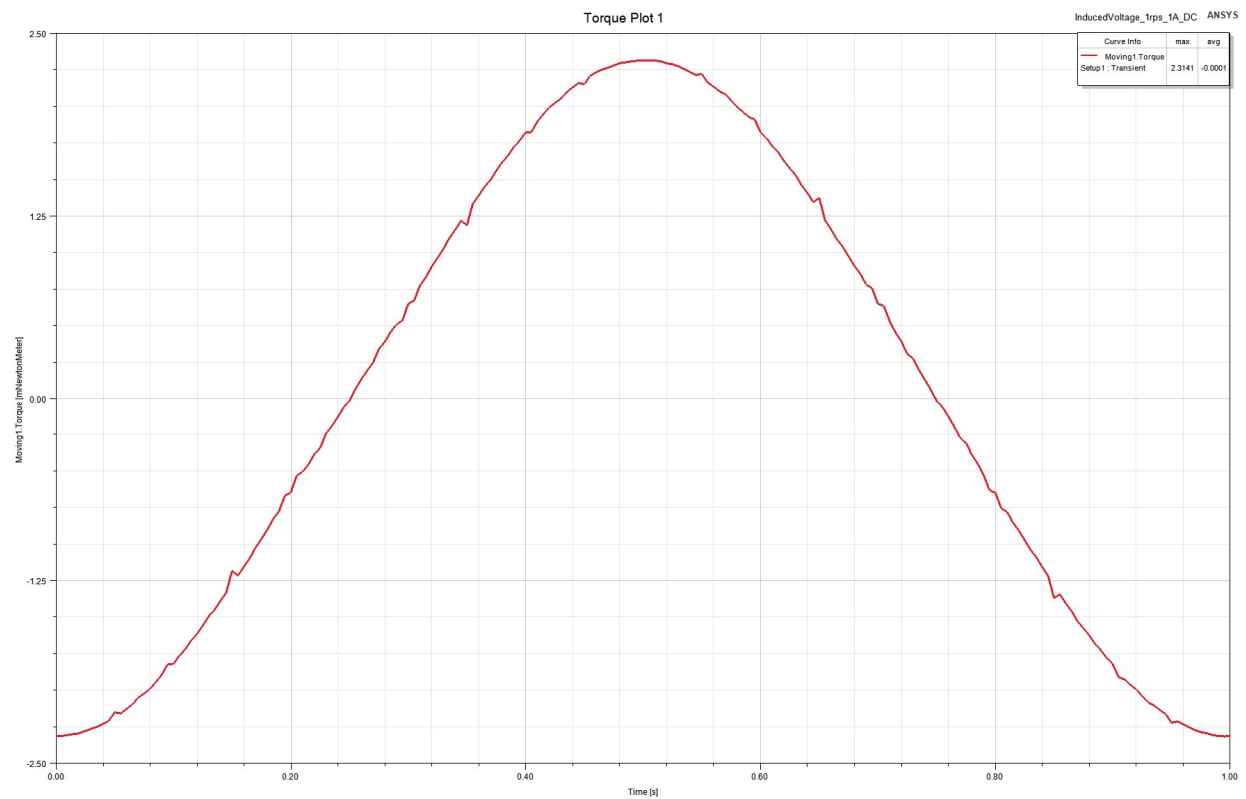
C.1 Induced voltage and flux linkage of the winding



C.2 Determine the amplitude and the frequency of the induced voltage

Value	Result	Units
Amplitude	72.3555	mV
Frequency	5	Hz

D.1 Induced Torque



Value	Simulated	Calculated	Units
Amplitude	2.3141	0.223	m Nm
Frequency	1	N/A	Hz
Average	0	N/A	m Nm

$$\begin{aligned}
 \tau_{ind} &= \varphi_{max} i \sin(\omega t) \\
 &= (0.0071)(1A)(2\pi(0.505))
 \end{aligned}$$