Since the motor is a big RL load, we think that we do not need a LC filter for the buck converter output. Hence, we have modelled the buck converter without LC filter. At the output of the converter we have a square wave, but the output current has small ripples.

While motor is just started to run, there is no back emf produced. Therefore, we have modelled the starting of the motor with just RL load. We applied D=0.1 duty cycle to the MOSFET and observed the output current. Output current finally reaches 20 A which is smaller than the rated current of DC motor. Thus, initially we can set duty cycle as 10% then increase it with increased back emf of the DC Motor.