ELG4157 Journaling an Open-ended Case
STATE SPACE MODELLING AND SIMULATION OF A DC-DC CONVERTER
Modelling (Case 1: 10 marks) and Simulation (Lab 1: 10 marks)
(Copy and Paste of any Kind is not Accepted)

Student 1	
Student 2	

The design of the control system of a power converter may be a challenging task especially when high performance is required as a function of load and input variations. This challenge may further increase in the presence of input filters which are under damped to increase the converter efficiency. Consider yourselves two control engineers looking for a DC-DC converter for a project.

Literature Review
Conduct a literature review to investigate the above topic. You may need to investigate at least five papers, summarize their outcomes and include them as references for your case (1-2 pages).

Topology
Select one of the following topologies Buck; Boost; or Buck Boost. There are three main groups of control topologies in DC-DC conversion including voltage mode control, current mode control and average current mode control. You may adopt one topology.

State Space Modeling (case Work)
In modern control engineering, a state space representation is a mathematical model of a physical system as a set of input, output and state variables related by first-order differential equations. In this section draw and construct the model.

State Space Simulation (Lab Work)
Simulate the model using Simulink or any other simulator to generate results especially the output response to load and input signal variations.

Conclusion
Summarize the work and discuss the results.