There are many problems arising due to the dynamic motion of helicopters and their rotors. The aim of this assignment is to formulate a simple method that would allow estimates to be made of the natural stability of the helicopter.

You should apply your analysis to the helicopter that was chosen for assignments 1 and 2.

Using gathered, predicted or estimated data for the helicopter mass, inertia, aerodynamic derivatives then calculate the system matrix for longitudinal motion of the complete helicopter.

Predict the overall modes of motion and the stability of these for your helicopter.

Treat this assignment as a first pass at identifying the governing equations that apply to helicopter dynamics and a ball-park estimate for their aerodynamic derivatives. Research into the published properties of exiting aircraft would be beneficial.

This assignment should take 18 hrs to complete.