

Project report
Project 3A – TSFS09

Name1 – email1

Name2 – email2

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1 Drive-line Modelling

1.1 Drive-line Equations

Here, the equations governing the driveline are described, component by component.

Engine:

The engine torque response can be modelled as a first-order linear system:

$$M_e = (1/\tau_e) (M_{req} - M_e).$$

Furthermore, ...

Clutch:

...

Propeller shaft:

...

Final drive:

...

Drive shaft:

...

Wheel:

...

Vehicle:

...

1.2 State-space Formulation

Here, the equations above are combined (intermittent terms eliminated) and written in state-space form.

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2 Observers and Controllers

2.1 Block Diagram

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2.2 Observer Equations

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2.3 Controller Equations

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