Week 5: Assignment 5

Due on 2021-08-11, 23:56 BST.

Problem 1: System Separability

The system is separable if each output is a function of only the corresponding input.

Problem 2: Controllability

A system is controllable if there exists a control input that can steer the system to any desired state in a finite amount of time.

Problem 3: Observability

A system is observable if the state of the system can be uniquely determined from the output measurements.

Problem 4: Transient Response

The transient response of a system is the response to a step input that occurs after the system reaches steady state.

Problem 5: Stability

A system is stable if it remains bounded for all bounded inputs.

Problem 6: Feedback Control

Feedback control systems are commonly used in engineering to improve system performance and stability.

Problem 7: Design Considerations

When designing a control system, it is important to consider factors such as time delay and noise.

Problem 8: Conclusion

In summary, control systems are essential in modern engineering, and understanding their properties is crucial for effective design and implementation.