



# كلية الرشيد الجامعة قسم هندسة تقنيات الحاسوب

المرحلة الثالثة

اسس هندسة السيطرة

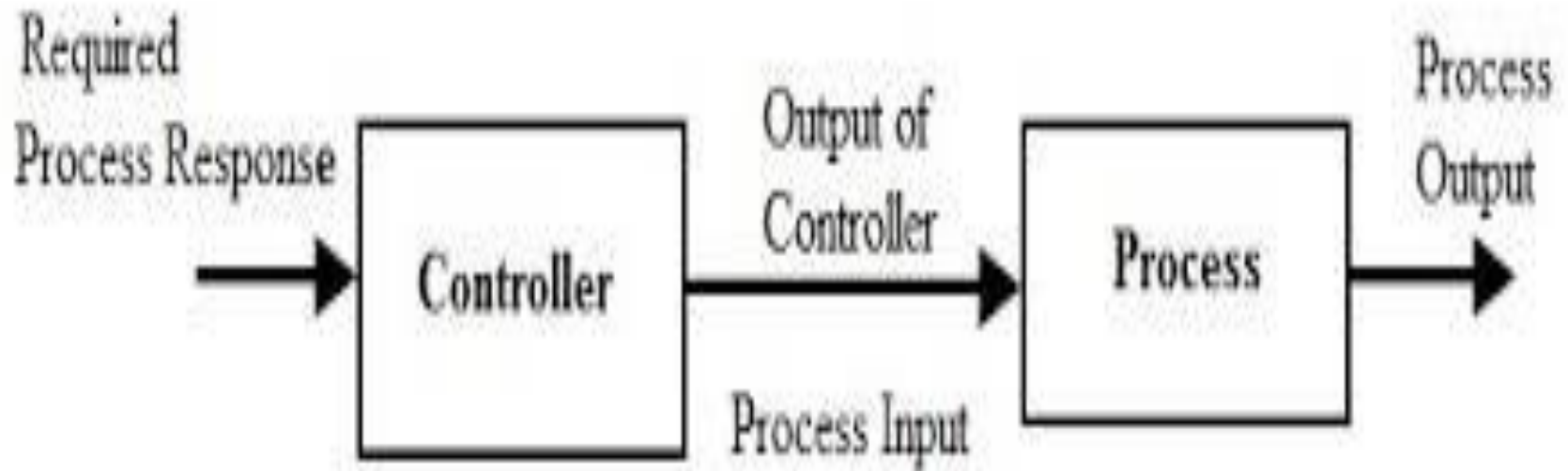
المحاضرة رقم (٢)

مدرس المادة : م.م. تميم محمد

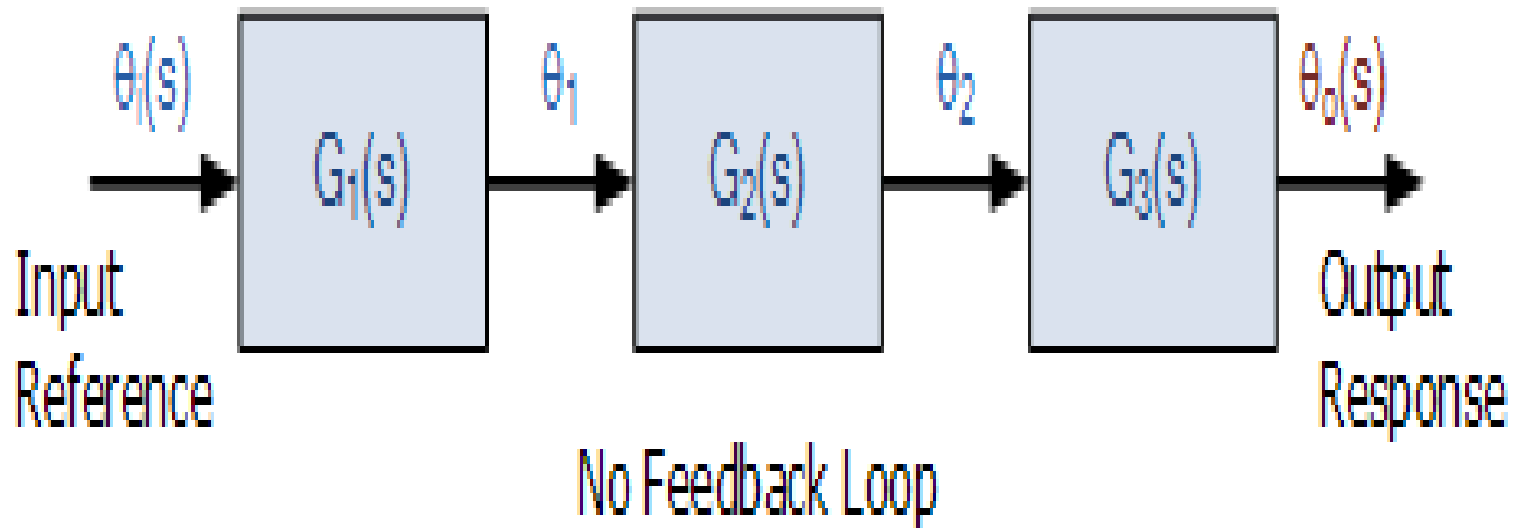
# OPEN-LOOP SYSTEM

- Systems in which the output quantity has no effect on the input to the control process are called open-loop control systems, and that open-loop systems are ended non-feedback systems.
- open-loop system can be represented as multiple cascaded blocks in series or a single block diagram with an input and output. The block diagram of an open-loop system shows that the signal path from input to output represents a linear path with no feedback loop

# OPEN-LOOP SYSTEM



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1. referred to as non-feedback system
2. Open loop is a type of continuous control system in which the output has no influence or effect on the control action of the input signal.
3. open-loop system has no knowledge of the output condition, so open loop cannot correct any errors it could make when the preset.

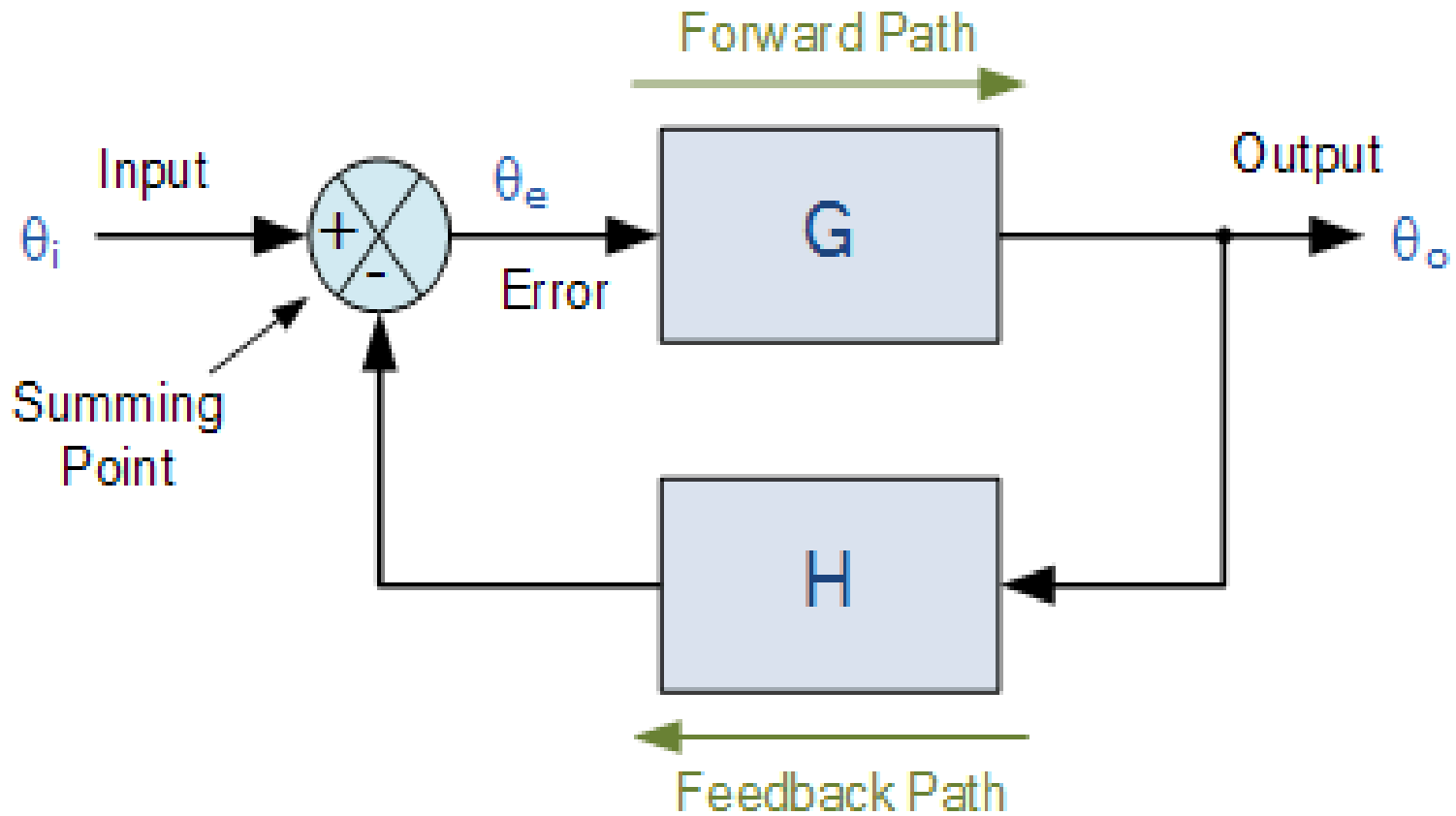
# CLOSED-LOOP SYSTEM

- ❖ control system with one or more feedback paths
- ❖ a controller is used to compare the output of a system with the required condition and convert the error into a control action designed to reduce the error and bring the output of the system back to the desired response.
- ❖ Then closed-loop control systems use feedback to determine the actual input to the system and can have more than one feedback loop.
- ❖ The primary advantage of a closed-loop feedback control system is its ability to reduce a system's sensitivity to external disturbances.

# ADVANTAGE OF CLOSED LOOP

1. To reduce errors by automatically adjusting the systems input.
2. To improve stability of an unstable system.
3. To increase or reduce the systems sensitivity.
4. To enhance robustness against external disturbances to the process.
5. To produce a reliable and repeatable performance.

# CLOSED-LOOP SYSTEM





# CLOSED-LOOP SYSTEM

