SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

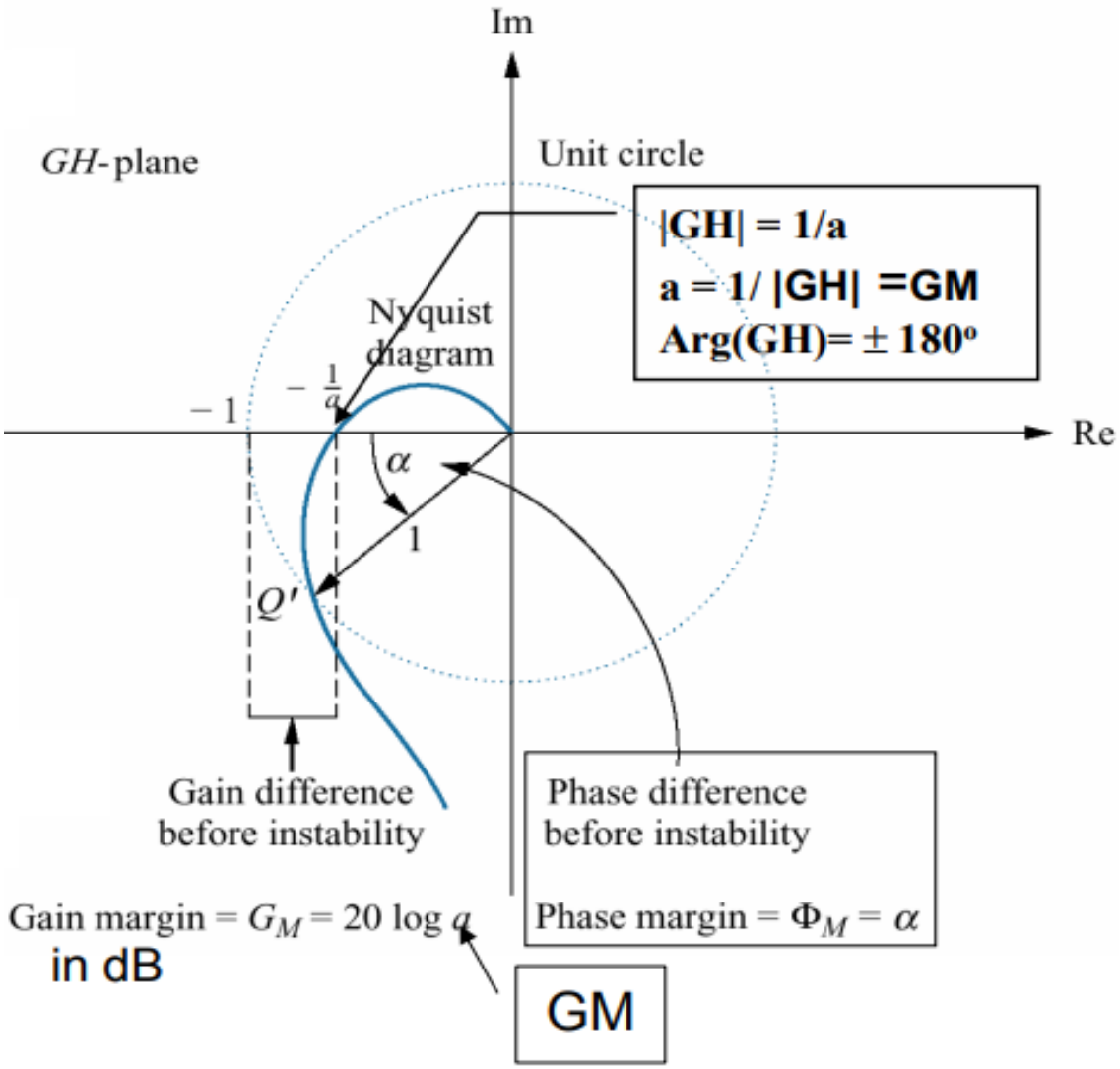
UNIT III

NYQUIST PLOT

Introduction-Nyquist

- The Nyquist diagram to define two quantitative measures of how stable a system is. These are called gain margin and phase margin. Systems with greater gain margin and phase margins can withstand greater changes in system parameters before becoming unstable.
- **Gain margin, GM**, The gain margin is the change in open-loop gain, expressed in decibels (dB), required at 180◦ of phase shift to make the closed-loop system unstable.
- **Phase margin, Φ_M**, The phase margin is the change in open-loop phase shift, required at unity gain to make the closed-loop system unstable.

INTRODUCTION



For stability, the PM must be positive. As the PM approaches 0 degrees, the system becomes more oscillatory

PROBLEM & STABILITY

https://www.youtube.com/watch?v=dXRQSm2vb7M --Nyquist Plot (Problems) - Frequency Response Analysis - Control System

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As the PM approaches 0 degrees, the system becomes more oscillatory