SNS COLLEGE OF TECHNOLOGY

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COIMBATORE-35
Accredited by NBA-AICTE and Accredited by NAAC – UGC with A+ Grade
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19EEB302/ POWER SYSTEMS – II
III YEAR / VI SEMESTER
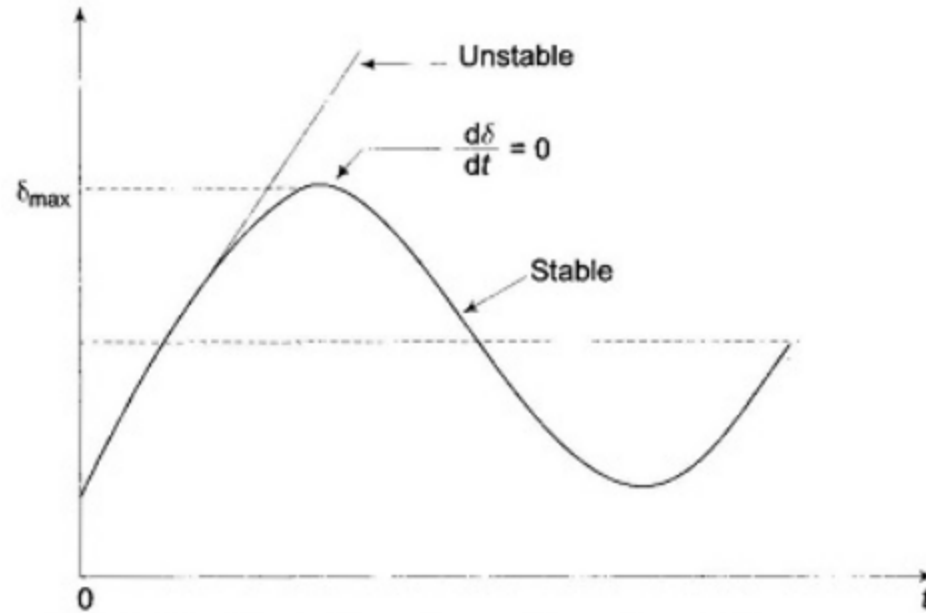
EQUAL AREA CRITERION

Fig. 12.18 Plot of δ vs t for stable and unstable systems

Consider the swing equation

$$\frac{d^2\delta}{dt^2} = \frac{1}{M}(P_m - P_e) = \frac{P_a}{M}; \; P_a = \text{accelerating power}$$
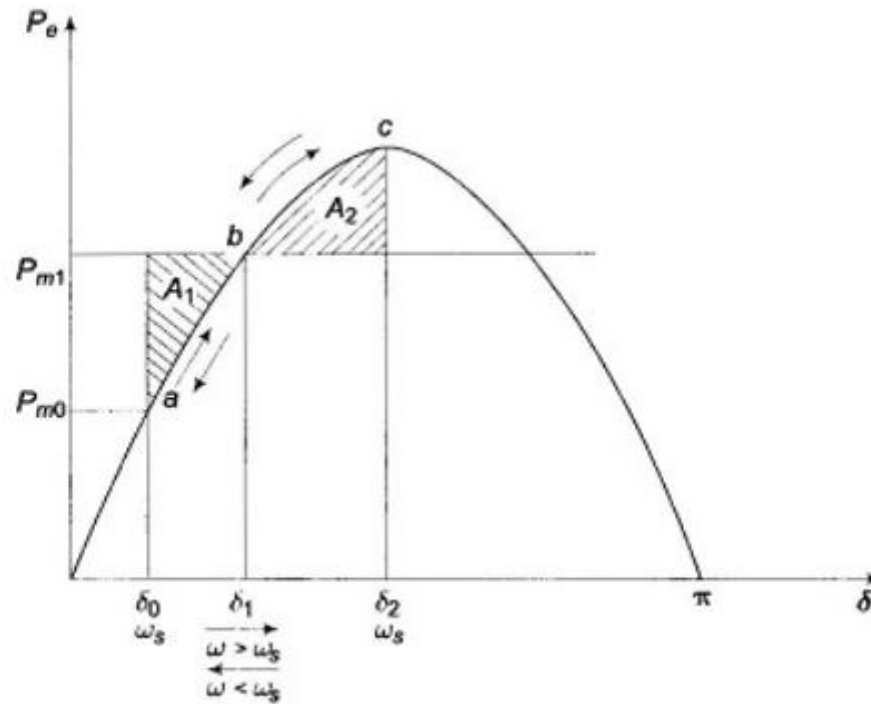
$$M = \frac{H}{\pi f} \text{ in pu system} \qquad (12.53)$$

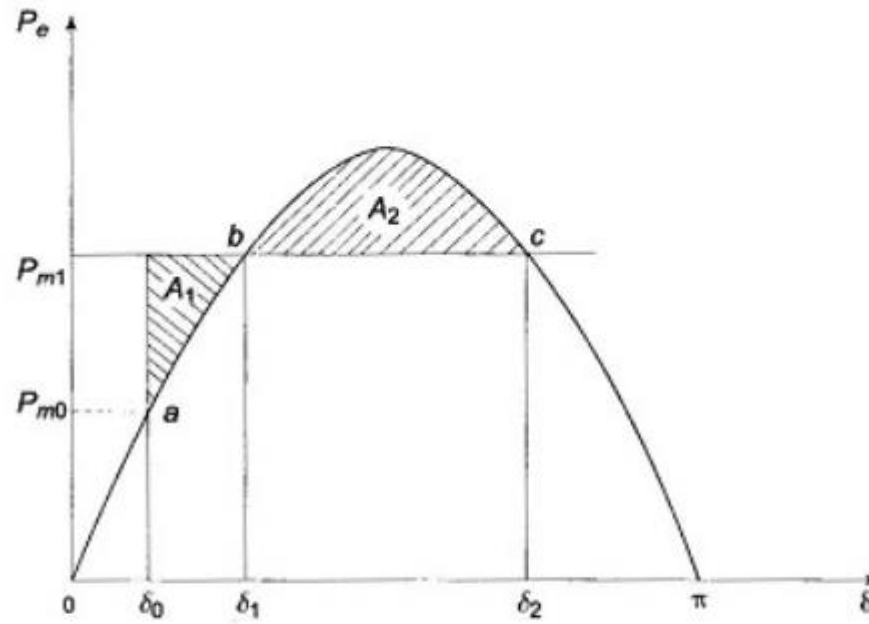**Fig. 12.20** $P_e - \delta$ diagram for sudden increase in mechanical input to generator of Fig. 12.19

Fig. 12.21 Limiting case of transient stability with mechanical input suddenly increased

$$\delta_2 = \delta_{max} = \pi - \delta_1 = \pi - \sin^{-1} \frac{P_{m1}}{P_{max}} \qquad (12.58)$$

RECAP….

…THANK YOU