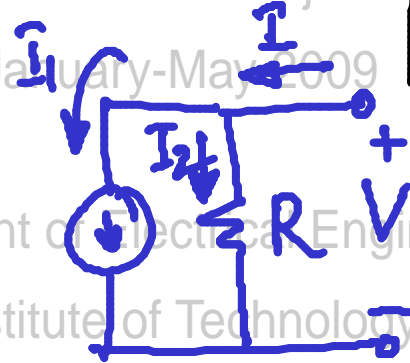
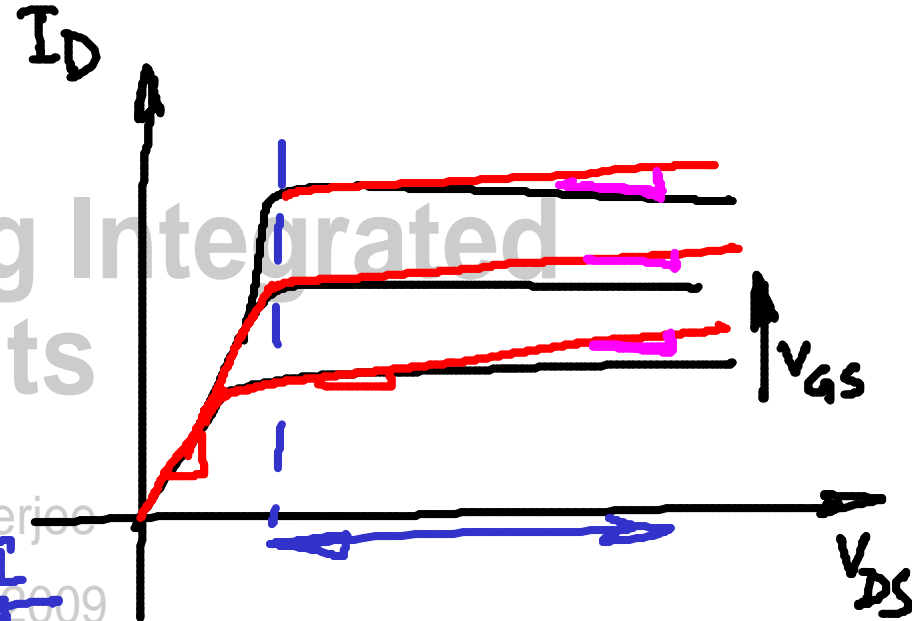
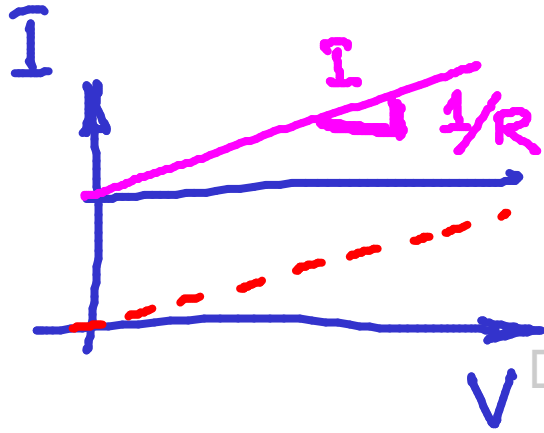


# MOSFET

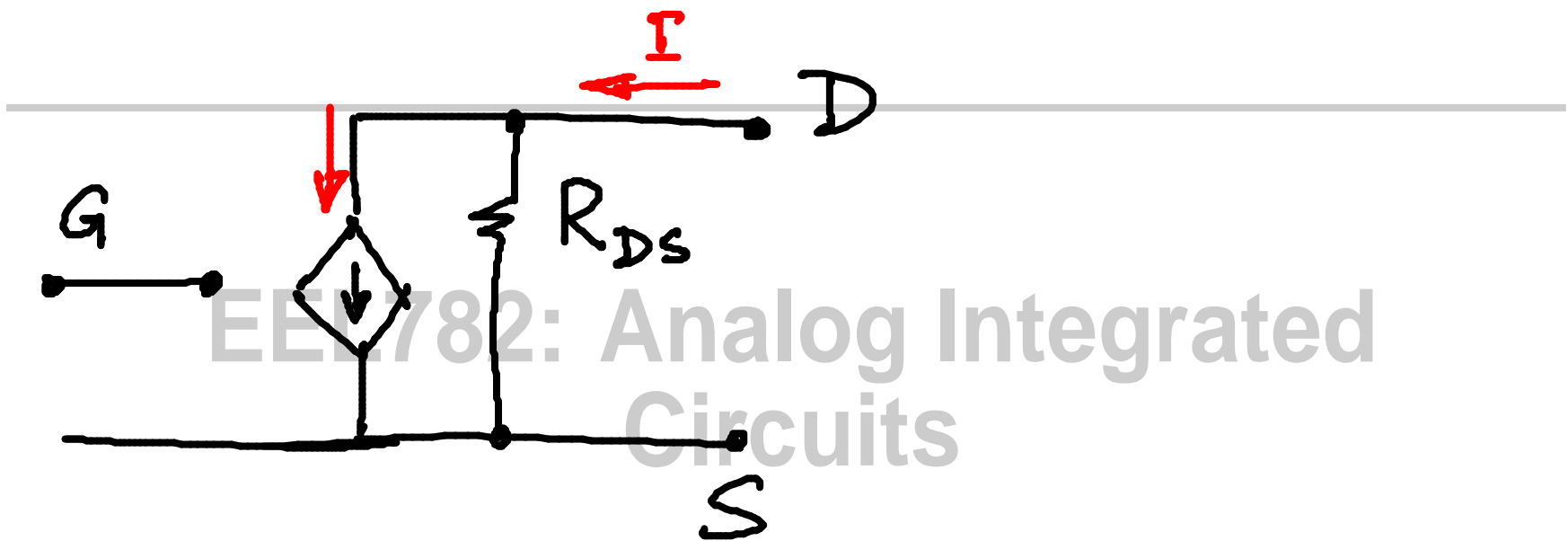
1. An electronic switch
2. A VCCS



Current source  
with finite  $R_{out}$

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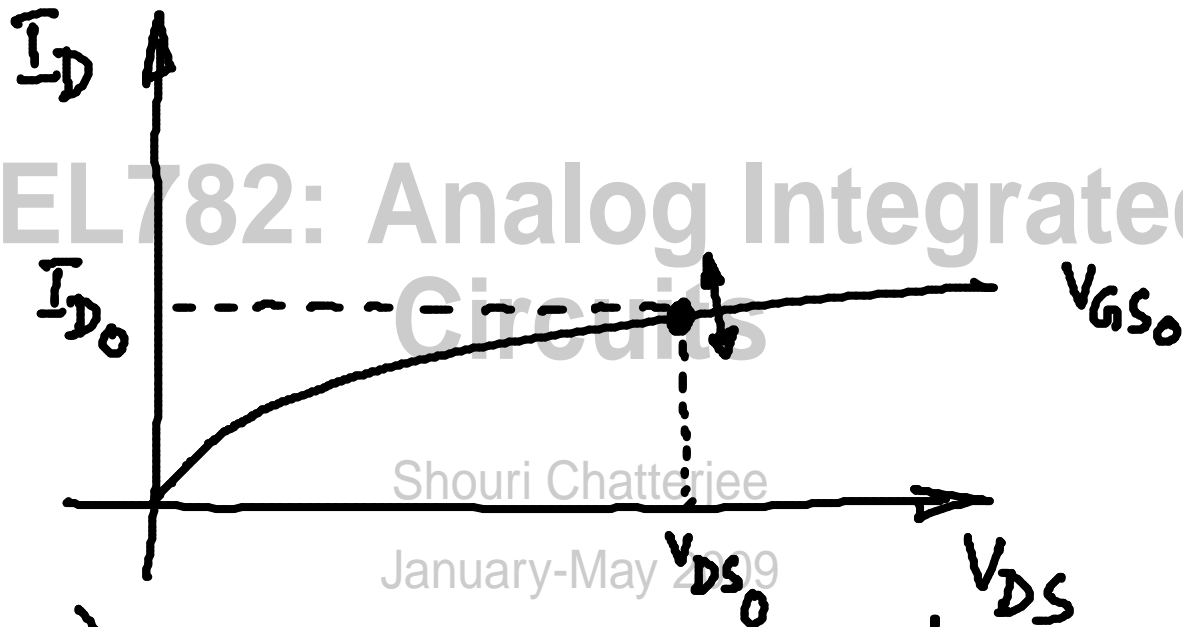
$$f(x + x_0) = f(x_0) + f'(x_0) \cdot x + f''(x_0) \cdot \frac{x^2}{2!} + \dots$$

$$\approx f(x_0) + x \cdot f'(x_0)$$

$$f(x + x_0, y + y_0) = f(x_0, y_0) + x \cdot \left. \frac{\partial f(x, y)}{\partial x} \right|_{x_0, y_0} + y \cdot \left. \frac{\partial f(x, y)}{\partial y} \right|_{x_0, y_0}$$

$$f(x+x_0) \approx f(x_0) + x f'(x_0)$$

# EEL782: Analog Integrated Circuits

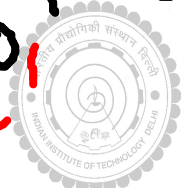


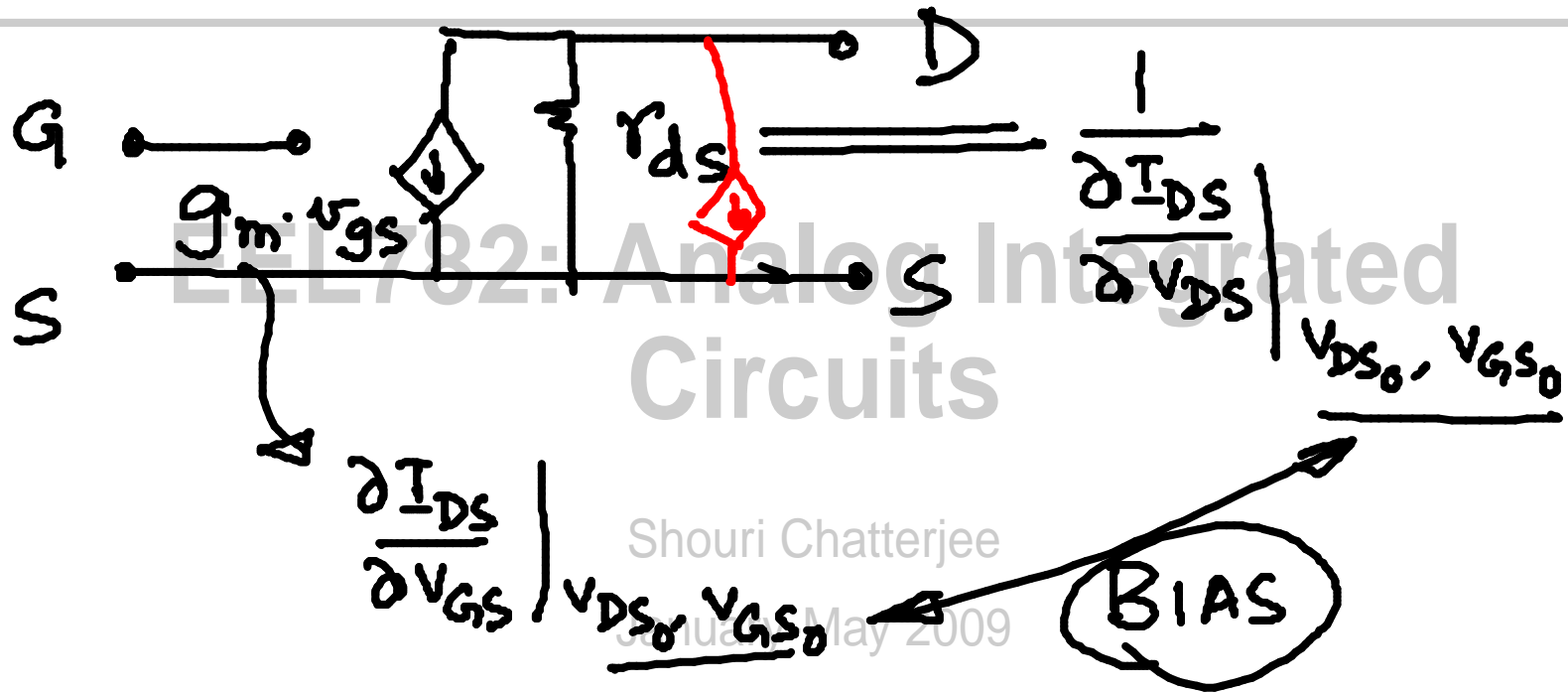
Shouri Chatterjee

January-May 2009

$$f(V_{DS0} + v) = I_{D0} + v \cdot \left. \frac{dI_D}{dV_{DS}} \right|_{V_{DS0}}$$

$$f(V_{DS0} + v_{ds}, V_{GS0} + v_{gs}) = I_{D0} + v_{ds} \cdot \left. \frac{\partial I_{DS}}{\partial V_{DS}} \right|_{V_{DS0}, V_{GS0}} + v_{gs} \cdot \left. \frac{\partial I_{DS}}{\partial V_{GS}} \right|_{V_{DS0}, V_{GS0}} + v_{bs} \cdot \left. \frac{\partial I_{DS}}{\partial V_{BS}} \right|_{V_{DS0}, V_{GS0}}$$





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