Unit 3 Lesson 10

- For a system of the form

$$p(D)\,x = f(t),$$

we have "transfer function"

$$W(s) = \frac{1}{p(s)},$$

where $p(s)$ is the characteristic polynomial.

- The transfer function of a DE is also the Laplace transform of the unit impulse response;

$$W(s) = L(w(t))$$

Example Problem:

1: Fail; $(s+2)(s+3) = s^2 + 5s + 6$, thus

$$P(D) = D^2 + 5D + 6I$$

2: All $P(D)$ have transfer function of the form $1/P(s)$; by way of contradiction $P(D)$ doesn't exist.