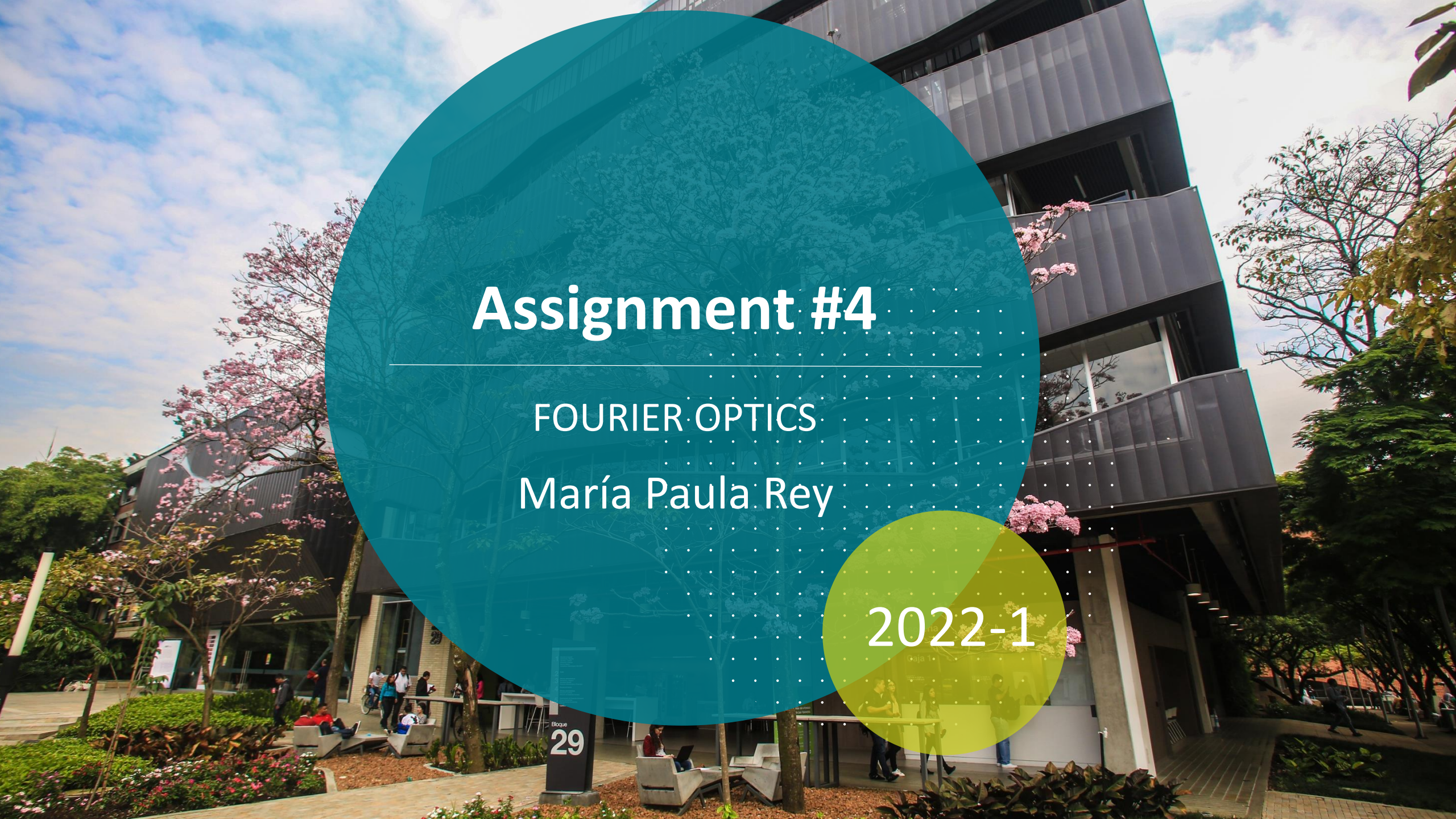
Inspira Crea Transforma

UNIVERSIDAD EAFIT



Assignment #4

FOURIER OPTICS

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Fourier basis functions

$$\psi_n(t) = e^{i2\pi n v_o t}$$

$$\langle e^{inx}, e^{inx} \rangle = \int_0^{2\pi} e^{inx} e^{-inx} dx = \int_0^{2\pi} e^0 dx = 2\pi$$

$$\langle e^{inx}, e^{imx} \rangle = \int_0^{2\pi} e^{inx} e^{-imx} dx = \int_0^{2\pi} e^{i(n-m)x} dx =$$

$$\frac{-i[e^{i2\pi(m-n)} - 1]}{m-n} = \frac{-i[\cos(2\pi(m+n)) + i\sin(2\pi(m+n)) - 1]}{m-n} = 0$$

Gracias

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