

## Class 16 - Lenses, Optical Fourier Transforms, 4F imaging systems and spatial filtering

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The learning objectives of this class:

- Understand the operation principle of lenses
- Determine the transmittance of lenses
- Understand the use of the ABCD matrix to estimate the diffraction patterns in an arbitrary optical system
- Calculate the complex amplitude distribution at an arbitrary plane using the ABCD matrix
- Calculate the complex amplitude distributions at the Fourier and image planes in a coherent 4f imaging system using ABCD matrix
- Calculate the complex amplitude distribution at the image plane if there is a pupil in the Fourier plane of a coherent 4f imaging system
- Identify the coherent impulse response and its transfer function in a coherent 4f imaging system
- Understand spatial filtering



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