

Optical Design Course: EOP_601



University of Dayton

Department of Electro-Optics and Photonics

Instructors: Drs. Cong Deng and Thomas Weyrauch

Learn optical design using OpticStudio 18.9, the newest professional version of ZEMAX and the most popular optical design software. Students will have the opportunity to learn OpticStudio with remote access on their own laptops, through an engineering oriented textbook written by Joseph M. Geary, the most popular one used for most of the well-known optical centers in the US. Start from basic optical concepts for those with limited knowledge of optics. Then learn deeper knowledge on ray tracing and optical aberrations. In the end, we will introduce fundamental principles of merit function, tolerance analysis, opto-mechanical design and industrial design for manufacturability, emphasizing the manufacturing requirements by US companies. Non-sequential optical simulation will also be briefly introduced as well. Additionally, some real practical optical designs, including very complicated one, will also be discussed. The goal is to help students to learn critical skills for designing practical optical system, ready for the challenge in their optical engineering career. Furthermore, it is also the main goal to offer learning instruction with abundant material to students who would like to self-improve their design skills to professional level in the future.

Textbook: Introduction to Lens Design: with Practical ZEMAX Examples, Joseph M. Geary, Pub: Willmann-Bell (August 2002), Ed: August 2002, ISBN: 0-943396-75-1 ([\\$50, Buy from Ms. Meghan L. Brophy, EOP Dept.](#))

Prerequisite: EOP-501: Geometrical Optics, basic background in Optics, or familiar with textbooks:

- ✓ Hecht, E. and Zajac, A., Optics (First edition). Boston: Addison-Wesley, 1974
- ✓ Smith, W.J., Modern Optical Engineering, 3rd Ed. McGraw-Hill, 2000. ISBN 0-07-135360-2
- ✓ Goodman, J., Introduction to Fourier Optics. New York: McGraw-Hill

Registration now online through the University of Dayton website

Class starts: Aug. 21, 2019

