ONE WEEK COURSE IN THE

PRACTICAL DESIGN AND PRODUCTION OF OPTICAL THIN FILMS

Why This Course/Objective

Advanced optical thin films are being used increasingly in communications, optical systems, and light control and collection applications. The sophistication of the optical coating industry is advancing rapidly to meet ever increasing demands for performance and production capability. New viewpoints, equipment, and processes are available to support advanced capability and efficiency. Objectives of this course include: to provide increased knowledge and understanding of the many practical aspects of optical coating design and production, to give hands-on design experience in the techniques and principles discussed, and to elucidate techniques and processes that are commonly successful in meeting optical coating needs.

Benefits for You

This course will enable you to:
*firmly grasp, visualize, and use design principles and graphical methods in thin film design
*gain hands on computer aided design experience in applying the concepts of this course
*understand Fourier thin film synthesis and compare rugate and discrete layer designs
*estimate what can be achieved before starting a design

*solve practical coating design problems in class
*select appropriate optical coating equipment to support the needed processes
*be familiar with the properties and process know-how for common optical coating materials
*learn about DOE process development techniques and the use of various ion/plasma sources
*understand various monitoring and control strategies and their advantages and limitations

Valuable Take-home Materials

Mr. Willey's books the Practical Design of Optical Thin Films and Practical Production of Optical Thin Films and software for special calculations and graphics will be provided along with supplementary class notes, and the free version of the internationally used FilmStar design and evaluation software by Fred Goldstein. These can be valuable for future reference.

Who Should Attend, Who Will Benefit

The course is intended to be valuable to new coating engineers, scientists, technical managers, and technicians as well as seasoned thin film scientists who are involved in design, development, and production of optical thin films. Basic principles are laid out from the beginning for those new to the field, but the evolution of the topics then moves into material and techniques useful to even the more experienced practitioners. No extensive background in mathematics or physics is required; extensive graphical illustrations are used.

Course Instructor

Ron Willey is a consultant with over 40 years in the fields of thin film and optical system design, development, and production. He is a graduate of MIT in optical instrumentation and has an MS in computer science from FIT. He has lead groups in optical coating and instrumentation development and production at Martin Marietta, Raytheon, Opto_Mechanik, and LexaLite International. He is very experienced in practical thin films design, process development, and the application of industrial Design Of Experiment methodology (DOE). He holds four patents and has published many papers on optical coating, optical design, and economics of optical tolerances. He is a Fellow of the SPIE and the Optical Society of America.

Course Outline

(Taken directly from the Table of Contents of the Two Books used in the Course.)

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