

Using TFCalc in the Optical Systems Technology Program



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Challenge

Developing practical and analytical skills for multilayer thin-film coating design.



Solution

Using the industry-standard TFCalc for education on thin-film design, optimization, and optical performance evaluation.

Empowering Optics Students with TFCalc for Coating Design

Background

Optical Systems Technology Program: Education Aligned with Industry Demand

Monroe Community College's Optical Systems Technology (OST) program trains technicians for the rapidly growing optics and photonics industry. Our students learn lens manufacturing, metrology, fabrication, and coating processes, preparing them for high-demand roles with 100% job placement after graduation.

Key Selection Factor

Why TFCalc: An Industry-Standard Tool for Thin-Film Design

TFCalc is an industry-recognized standard for thin-film design, making it ideal for workforce-ready training. TFCalc is intuitive, accurate, and powerful for multilayer design. Its graphical interface helps students visualize reflection/transmission curves and quickly optimize coating parameters. The built-in design libraries and optimization tools save time and allow students to explore multiple solutions efficiently.

Used

Experiential Learning in Multilayer Optical Coating Design

Our students use TFCalc in hands-on lab courses focused on thin-film design and coating technology. They design multilayer coatings (anti-reflection, beam splitters, high-reflectors), simulate optical performance, and compare theoretical models with measured spectral data from our new coating chamber. This integration of simulation and real-world data deepen their understanding of optical coating principles.

Future Outlook

Expanding TFCalc Training to Advanced Courses and Industry Workshops

We plan to expand TFCalc use into advanced courses and industry workshops, training students and working professionals. Our request regarding product features is for a cloud-based licensing option. This would be beneficial for remote learning, enabling students to practice outside the lab environment.

