OPTI 435/535 Syllabus

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**Section 1** - What is vision? Anatomy of the eye. Dissection. Average and range of sizes, shapes and indices of ocular components. Overview of optical modeling. Definition of visual acuity.


**Section 3** - Spherical, Chromatic, Astigmatism (axial and oblique). Techniques for measuring aberrations. Nominal values. Derivation of these quantities from raytrace data. Retinal curvature.


**Section 5** - Double-pass measurement of PSF. Deconvolution. Asymmetric passes. Aberroscope. Shack-Hartmann test, Raytracing, Talbot-Moire.

**Section 6** – Zernike Polynomials and wavefront representation

**Section 7** - Spherical ametropia, cylindrical error, Scheiner disk, vector addition of crossed cylinders. Correction with sphero-cylindrical spectacle lenses. Correction with spherical, aspheric and toric contact lenses. prism ballast.

**Section 8** – Optometers, Autorefractors: image analysis, retinoscopic scanning and Scheiner disk types. Fogging.

**Section 9** - Lensmeters, Accommodation , age changes, near addition. Progressive lenses. Spherical and astigmatic considerations.


**Section 11** - Other corrections: RK/AK, PRK, ALK/LASIK, orthokeratology, interscleral ring.


**Section 13** - Calculation of radii of curvature, astigmatic axis and conic constant from Zernike expansion coefficients. Keratoconus detection.


Section 17 - Radiometry and Photometry. MPE.


Patent Class 1 - Elements of a patent. Patent searching

Patent Class 2 - Specific Example of an ophthalmic patent