Study program: Special Education and Rehabilitation, module of Visual Impairments

Type and level of studies: Basic Academic Studies

Title of the subject: Optics in Ophthalmology

Lecturer: Dragomir M. Stamenković

Course status: Elective

ECTS: 5

Prerequisites: Passed exams Ophthalmology and Physiological optics

Aim:

Acquiring theoretical and practical knowledge from the basis of optics for vision correction: lenses for glasses, contact lenses, aids for visually impaired. Study of the theory of optical systems and practical training for the application of optical and optoelectronic devices in optometry, ophthalmology, ophthalmosurgery as well as devices for visually impaired persons.

Outcomes:

Examination of the properties and practical application of optical means for correction of ametropia and visual impairment. Introduction to characteristics and training for the application of optical and optoelectronic devices in optometry and ophthalmology.

Content

Lectures:

Optics for vision correction: lenses for glasses (monofocal, bifocal, multifocal, photochromic, optical filters), prescription for glasses, frames, contact lenses (rigid, gaspermeable, soft, silicone-hydrogel, orthokeratology, for keratoconus, progressive, for astigmatism, scleral), aids for visually impaired persons (magnifiers, telescopic systems, prismatic glasses, optical filters, optical and optoelectronic devices). Fitting of contact lenses (optical aspects) and wearing training. Optical and optoelectronic devices in optometry, ophthalmology, ophthalmosurgery (lasers, ultrasound).

Practical work:

Production and training for determining, prescribing, ordering and wearing optical visual correction devices - eyeglasses, contact lenses, prismatic glasses, optical filters, telescopic and optoelectronic magnifiers. Features and application: radiuscope, photometer, keratometer, refractometer, biomicroscope, corneal topograph, aplanatic tonometer, pachymeter, field of vision, ultrasound and laser ophthalmic devices.

Literature

1. Vasiljević, D. (2004). *Optički uređaji i optoelektronika* (str. 64-168). Beograd: Mašinski fakultet. ISBN 86-7083-493-6.
2. Hribar-Košir, A. (2002). *Priročnik za očesno optiko* (стр. 112-306). Carl Zeiss Maribor, 681.7(035).
3. Parunović, A., Cvetković, D. (1995). *Korekcija refrakcionih anomalija oka* (str. 120-199). Beograd: Zavod za udžbenike i nastavna sredstva. ISBN 86-17-04525-6.
4. Barthelemy, B., Thiebaut, T. (2004). *Contactologie*. Lavoisier. ISBN 2-7430-0658-7.
5. Kaschke, M., Donnehacke, K-H., Rill M.S. *Optical Devices in Ophthalmology and Optometry.* WILEY – VCH. ISBN 978-3-527-41068-2.

Number of active classes per week:	**Lecture: 2**	**Practical work: 1**

Teaching methods:

Active classes, demonstratively-illustrative method. Practical exercises in the ophthalmic cabinet, visually impaired center and in the laboratory for manufacture of contact lenses and eyewear lenses.

Evaluation of knowledge (maximum score 100)

Pre obligations	**Score**	**Final exam**	**Score**
activities during the lectures	**10**	written exam	**/**
practical teaching	**10**	oral exam	**50**
midterm(s)	**15**		
seminars	**15**		