

BASIC COURSE INFORMATION WITHIN THE STUDY PROGRAMME

PROFESSIONAL GRADUATE STUDY
PROGRAMME

OPTOMETRY

Course title: Master's Thesis

Course Code:
OP402

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
4	0 + 0 + 15	225	25

Course Objective:

The objective of the course is to demonstrate the student's ability to apply theoretical knowledge acquired during the study programme to solving specific professional problems, and to use relevant professional literature when addressing the selected topic. Students will develop a research question and conduct a study that includes data collection and analysis, or carry out a systematic and critical review of the literature, synthesizing current knowledge and identifying future research directions. The student will understand the ethical implications of research as well as the principles of organizing and conducting a research project.

Course Content:

Preparation for the master's thesis includes topic selection, thesis structure, literature review, basic information technology skills, introduction to professional and scientific work, ethical principles in research, and critical evaluation. Students will evaluate the area of the chosen topic and write the master's thesis.

Learning Outcomes:

Upon completion of the course, students will be able to independently:

1. Define a professional problem.
2. Plan and conduct research independently.
3. Apply the acquired knowledge and competences gained during the study programme.
4. Apply the methodology of writing a professional or scientific paper.
5. Present the results of the conducted research.

Required Literature:

1. Marušić, M. et al. (2019). Introduction to Scientific Work in Medicine (6th ed.). Zagreb: Medicinska naklada.
2. Hart, C. (2005). Doing Your Master's Dissertation. London: Sage Publications.

Course title: Pediatric Optometry and Strabismus

Course Code:
OP102

Semester:
1

Lectures + Exercises + Seminar:
2 + 0 + 1

Total Hours:
45

ECTS Credits:
6

Course Objective:

To acquire theoretical knowledge of normal systemic growth and development in comparison with simultaneous ocular growth and developmental markers. To understand the examination of children across different age groups. To gain theoretical knowledge of the diagnosis and management of refractive, binocular, and ocular disorders, including eye diseases common in the pediatric population. To learn management strategies and treatment regimens for childhood visual disorders, including the use of glasses, contact lenses, prisms, and amblyopia therapy. To become familiar with specific and alternative testing strategies for children, as well as the basics of orthoptic examination and therapy.

Course Content:

General child development and development of optical and sensory-motor functions of the visual system. Learning difficulties and vision-related problems. The role of the optometrist in collaboration with parents, teachers, and psychologists. Epidemiology of eye and vision disorders in children. Pediatric communication. Assessment of visual acuity and visual system development. Orthoptic examination and therapy.

Learning Outcomes:

Upon completion of the course, students will be able to:

1. Describe the criteria for prescription, amblyopia therapy, and referral to an ophthalmologist.
2. Recommend appropriate techniques for testing visual functions in children.
3. Explain ocular pathologies affecting the pediatric population.
4. Apply effective communication with children and their parents/guardians.
5. Propose various diagnostic techniques for pediatric patients.

Required Literature:

1. Cerovski, B. et al. (2015). Ophthalmology and Optometry. Stega tisak d.o.o.
2. Shukla, Y., & Saxena, R. (2023). Clinical Pediatric Ophthalmology and Strabismus.
3. Pediatric Ophthalmology and Strabismus. American Academy of Ophthalmology, 2017–2018.

Course title: Education and Empowerment

Course Code:
OP212

Semester:
2

Lectures + Exercises + Seminar:
1 + 0 + 1

Total Hours:
30

ECTS Credits:
5

Course Objective:

To acquire knowledge about inclusive education and its importance. The course explores inclusive education and accessibility, empowerment versus social control, and the impact of educational inclusion on students' rights. It also examines inclusion from the perspectives of parents, teachers, educational services, and students with disabilities. Disability is approached as a matter of social justice.

Course Content:

General child development and development of optical and sensory-motor functions of the visual system. Learning difficulties and vision-related problems. The role of the optometrist in collaboration with parents, teachers, and psychologists. Epidemiology of eye and vision disorders in children. Pediatric communication. Assessment of visual acuity and visual system development. Orthoptic examination and therapy.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Explain the concept of inclusive education.
2. Develop a critical perspective on the traditional role of pedagogy in the development of young individuals.
3. Apply multiperspectivity in analyzing inclusion.
4. Propose educational approaches that empower students with disabilities.

Required Literature:

1. Ninid, M., Rix, J., & Sheehy, K. (2005). Curriculum and Pedagogy in Inclusive Education: Values Into Practice.
2. Inclusive Education: A Human Right (Chapters 7 and 8), Third Edition, 2019.
3. Mason, M., & Rieser, R. (1992). Altogether Better: From "Special Needs" to Equality in Education.

Course title: Emergency Conditions

Course Code:
OP203

Semester:
2

Lectures + Exercises + Seminar:
2 + 0 + 0

Total Hours:
30

ECTS Credits:
6

Course Objective:

To acquire knowledge and skills necessary for recognizing and providing emergency treatment for injuries or sudden illnesses in optometric practice before regular medical care becomes available.

Course Content:

Recognition of emergency conditions such as disturbances of consciousness, seizures, bleeding, or shock. First aid in cases of injury, stroke, and hemorrhage. Emergency abdominal conditions. Hyperglycemic and hypoglycemic coma. Electrical injuries, burns, heat stroke, frostbite, and chemical burns. Assessment of chest pain. Allergic reactions. Poisoning caused by alcohol, drugs, carbon monoxide, or food. Eye injuries.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Describe the procedure of artificial respiration.
2. Describe the procedure in case of an allergic reaction or anaphylaxis.
3. Select an appropriate procedure in cases of fractures.
4. Select appropriate procedures for managing bleeding, wound care, shock, or burns.
5. Choose the correct course of action in cases of sudden illness such as cardiac, cerebral, respiratory, or diabetic emergencies, and other life-threatening conditions.

Required Literature:

1. Alton, L. et al. (2017). First Aid, CPR, and AED Advanced.

Course title: Clinical Research Methodology

Course Code:
OP302

Semester:
3

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
6

Course Objective:

To introduce students to the fundamental principles and concepts of science and research. To enable them to recognize and formulate research questions and/or problems, and to teach them the steps required to design research in the field of eye health care. To acquire knowledge and skills necessary for critical evaluation of research and preparation for conducting an independent research project.

Course Content:

Introduction to the philosophy of science and the research process. Scientific and statistical concepts. Formulation of research questions and problems. Quantitative methods – process and characteristics of measuring quantitative variables. Qualitative methods – phenomenological and social constructivist approaches. Specifics of research designs and methods in clinical settings: clinical interviews, clinical questionnaires, observational studies, epidemiological studies, case studies, naturalistic studies, cross-sectional and longitudinal studies, interventional studies, clinical trials, experiments and quasi-experiments, randomized clinical trials, and meta-analyses. Specific aspects of research in the field of eye health care. Searching library and electronic databases and selecting relevant literature. Ethical aspects of research. Critical evaluation of research. Research design and proposal development.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Recognize basic scientific and statistical concepts, principles, and methods.
2. Select relevant literature by searching library resources and electronic databases of scientific and professional information.
3. Identify key structural elements of research papers.
4. Evaluate scientific research in terms of its cognitive value as well as methodological strengths and weaknesses.
5. Design a research problem and create a research proposal.

Required Literature:

1. Čendo Metzinger, T., & Toth, M. (2020). Metodologija istraživačkog rada za stručne studije. Veleučilište Velika Gorica.
2. Vukosav, J., & Zarevski, P. (2011). Metodologija znanstvenih istraživanja. Ministarstvo unutarnjih poslova Republike Hrvatske, Policijska akademija.

Course title: Innovation Management in Healthcare

Course Code:
OP311

Semester:
3

Lectures + Exercises + Seminar:
1 + 0 + 1

Total Hours:
30

ECTS Credits:
5

Course Objective:

To acquire knowledge and skills for managing innovations in healthcare and related industries, evaluating competition, customer/patient needs, and regulatory requirements, as well as creating and implementing innovative solutions aimed at building sustainable competitive advantage.

Course Content:

Assessment of industry attractiveness (Porter's Five Forces Model). Market concentration metrics of the examined industry. Generic competitive strategies and the creation of sustainable competitive advantage. Innovation development in healthcare, with emphasis on the role of optometry in the overall value chain. Maintaining long-term customer relationships (Customer Relationship Management). Application of the Business Model Canvas (BMC) for developing an innovative business model or improving an existing one: value proposition, channels, customer relationships, revenue streams, key resources, key activities, key partners, and cost structure.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Evaluate industry attractiveness using Porter's Five Forces Model.
2. Calculate and interpret the level of market concentration among competitors in the examined industry.
3. Create an innovative business model aimed at achieving or increasing market share by applying the Business Model Canvas (BMC).
4. Collect, analyze, and present information for developing innovations that generate sustainable competitive advantage in the market.

Required Literature:

1. Prester, J. (2010). Menadžment inovacija. Sinergija.
2. Pavičić, J., Gnjidić, V., & Drašković, N. (2014). Osnove strateškog marketinga. Školska knjiga, Zagreb.
3. Blank, S., & Dorf, B. (2012). The Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company. John Wiley & Sons.

Course title: Neurological Disorders of the Visual System

Course Code:
OP301

Semester:
3

Lectures + Exercises + Seminar:
2 + 0 + 1

Total Hours:
45

ECTS Credits:
7

Course Objective:

To acquire knowledge of modern diagnostic and therapeutic approaches to glaucoma and other disorders of the visual system.

Course Content:

Anatomy and physiology of the afferent and efferent visual pathways. Abnormalities of the optic nerve. Pathophysiology of glaucoma and its subtypes. Screening methodologies used in glaucoma detection; pharmacological, laser, and surgical management principles. Principles and techniques for examination of the visual sensory system. Pupillary abnormalities. Optic neuropathy. Optic neuritis.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Analyze the optic nerve and the visual pathway.
2. Differentiate between various subtypes of glaucoma.
3. Identify available treatment options for glaucoma.
4. Apply diagnostic techniques and screening procedures for glaucoma.
5. Describe different tests used in the assessment of pupils and the visual pathway.
6. Explain the mechanisms of transient vision loss, optic neuritis, and other forms of optic neuropathy.

Required Literature:

1. Kanski, J. J. (2019). Clinical Ophthalmology: A Systematic Approach (9th ed.).
2. Cerovski, B. et al. (2020). Bolesti vidnog živca.
3. Cerovski, B. et al. (2012). Oftalmologija.

Course title: Optometric Practice

Course Code:
OP401

Semester:
4

Lectures + Exercises + Seminar:
0 + 4 + 1

Total Hours:
75

ECTS Credits:
5

Course Objective:

To present case studies from optometric practice, including case background, educational guidelines, case description, learning objectives, key concepts, discussion/conclusion, and references.

Course Content:

Presentation of case studies from optometric practice in the areas of anterior and posterior segment pathology, pediatric optometry, low vision, glaucoma and other neurological disorders, contact lens wearers, post-refractive surgery patients, and systemic diseases affecting ocular health.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Identify signs and symptoms from cases in optometric practice.
2. Define risk and infection factors from cases in optometric practice.
3. Describe key findings from cases in optometric practice.
4. List different differential diagnoses from cases in optometric practice.
5. Describe correction and treatment plans from cases in optometric practice.

Required Literature:

1. Kanski, J. J. (2019). Clinical Ophthalmology: A Systematic Approach (9th ed.).
2. Cerovski, B. et al. (2015). Oftalmologija i optometrija. Stega tisak d.o.o.
3. Kanski, J. J. (2003). Klinička oftalmologija (5th ed.).
4. Elliott, D. B. (2014). Clinical Procedures in Primary Eye Care (4th ed.).
5. Efron, N. (2019). Contact Lens Complications (4th ed.).

Course title: Other Techniques of Refractive Correction

Course Code:
OP303

Semester:
3

Lectures + Exercises + Seminar:
2 + 0 + 0

Total Hours:
30

ECTS Credits:
6

Course Objective:

To acquire knowledge about alternative techniques of refractive correction. The main emphasis is on performing accurate manifest and cycloplegic refraction, as well as on the operation of devices such as the corneal topographer, aberrometer, and biometer. The course introduces methods of corneal and lens refractive surgery, provides information on basic complications, and offers guidelines on when to refer a patient to a surgeon.

Course Content:

Overview of alternative options and techniques for refractive correction. Introduction to refractive surgery. History of refractive surgery. Methods of corneal refractive surgery. Theoretical knowledge of various refractive surgery techniques, available laser technologies, and tissue responses to procedures. Intraocular lens refractive surgical methods. Preoperative assessment and postoperative care. Knowledge of eye drops used in postoperative treatment.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Define preoperative and postoperative examinations in refractive surgery.
2. Select appropriate methods for refractive surgery and postoperative treatment.
3. Explain different refractive surgery methods, including their advantages and risks.
4. Evaluate suitable candidates for refractive surgery.

Required Literature:

1. Kanski, J. J. (2019). Clinical Ophthalmology: A Systematic Approach (9th ed.).
2. Krieglstein, G. K., & Weinreb, R. N. (2009). Essentials in Cataract and Refractive Surgery.

Course title: Business Ethics in Optometry

Course Code:
OPI04

Semester:
1

Lectures + Exercises + Seminar:
2 + 1 + 0

Total Hours:
45

ECTS Credits:
6

Course Objective:

To acquire a fundamental understanding and knowledge of ethical and cultural standards in optometry, the communication process, and the importance of continuous professional development activities in maintaining competencies and knowledge in areas of optometric practice.

Course Content:

Rules of professional ethics in relations with clients, colleagues, and society. Concepts and key features of communication, including verbal and non-verbal communication. Ethical issues and cultural differences in communication. Ethical and professional responsibility for the client's well-being, rights, dignity, and autonomy. Obligation of confidentiality regarding received information.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Identify the basic elements of communication.
2. Compare the components of verbal and non-verbal communication.
3. Apply interpersonal communication skills and techniques.
4. Integrate acquired knowledge of business ethics into optometric practice.
5. Recognize the importance of continuous professional development.

Required Literature:

1. Bailey, R. N., & Heitman, E. (2000). Ethics in Clinical Optometry: An Optometrist's Guide to Clinical Ethics. American Optometric Association.

Course title: Anterior Segment of the Eye

Course Code:
OP101

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
1	2 + 0 + 1	45	7

Course Objective:

To introduce students to the role of the optometrist in primary eye care and the main diseases of the anterior segment of the eye, providing the knowledge required to recognize pathologies. To acquire knowledge necessary for implementing key preventive measures, screening for anterior segment complications, and informing patients about prognosis and further management of their condition. To familiarize students with the latest diagnostic technologies and therapeutic approaches for anterior segment pathologies.

Course Content:

Taking patient history for symptoms of anterior segment pathology. Methods and techniques for anterior segment examination. Diagnostic imaging technologies for detecting changes and pathologies in the anterior segment. The significance of systemic medical conditions and other ocular findings in anterior segment pathology. Developing a management plan for patients with anterior segment diseases. The role of the optometrist in patient care.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Describe the signs and symptoms associated with anterior segment diseases.
2. Evaluate which diagnostic methods to apply based on collected patient data.
3. Identify conditions that require referral to an ophthalmologist or hospital emergency eye care.
4. Recognize signs and symptoms indicating progression of anterior segment pathology.

Required Literature:

1. Kanski, J. J. (2019). Clinical Ophthalmology: A Systematic Approach (9th ed.).
2. Cerovski, B. et al. (2015). Ophthalmology and Optometry. Stega tisak d.o.o.
3. Kanski, J. J. (2003). Clinical Ophthalmology (5th ed.).

Course title: Special Contact Lenses

Course Code:
OP204

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
2	2 + 0 + 1	45	6

Course Objective:

To acquire knowledge of the application of special, toric, cosmetic, and newly designed contact lenses. To learn fitting techniques for contact lenses in cases of high and/or irregular astigmatism and/or increased higher-order corneal aberrations. To develop skills for fitting contact lenses on ectatic corneas or after surgical procedures. To understand the use of corneal refractive therapy and orthokeratology in the correction of myopia. To apply contact lenses as a therapeutic device and recognize appropriate indications.

Course Content:

Students will review fundamental knowledge acquired in undergraduate studies. Topics include special lens designs and their applications, contact lenses after corneal surgery, myopia control, orthokeratology, therapeutic contact lenses, tear film interaction, and contact lenses for morphological corneal changes such as keratoconus. The course also covers semi-scleral and scleral contact lenses.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Analyze corneal topography to recommend appropriate special contact lens designs.
2. Explain the application of contact lenses after corneal surgery.
3. Explain the use of therapeutic contact lenses.
4. Select the appropriate fitting procedure for orthokeratology.
5. Choose suitable contact lens options for ectatic corneas.
6. Recommend appropriate scleral or hybrid contact lenses.

Required Literature:

1. Efron, N. (2019). Contact Lens Complications (4th ed.).
2. Efron, N. (2016). Contact Lens Practice.

Course title: Posterior Segment of the Eye

Course Code:
OP202

Semester:	Lectures + Exercises + Seminar:	Total Hours:	ECTS Credits:
2	2 + 0 + 1	45	7

Course Objective:

To acquire theoretical knowledge and understanding of common retinal and macular pathologies, with emphasis on screening, imaging techniques, and referral criteria.

Course Content:

Risk factors, differential diagnosis, and pathogenesis of retinal and macular disorders. Current management of medical retinal conditions, including patient response to treatment and evaluation of therapeutic outcomes. Imaging techniques such as Optical Coherence Tomography (OCT) and OCT Angiography (OCTA), as well as fundus photography, binocular indirect ophthalmoscopy (BIO), fluorescein angiography, indocyanine green (ICG) angiography, and autofluorescence. Ultrasound imaging of the retina and vitreous. The importance of diabetic eye screening, detection and classification of diabetic retinopathy, and identification and management of acute macular and retinal pathologies.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Explain risk factors and differential diagnosis of retinal and macular disorders.
2. Describe treatment options for retinal conditions.
3. Interpret techniques and findings from optical coherence tomography (OCT), angiography, and fundus photography related to age-related macular degeneration (AMD) and diabetic retinopathy.
4. Describe the use of fluorescein, indocyanine green angiography, and autofluorescence imaging.
5. Explain ultrasound imaging techniques of the posterior segment.
6. Classify diabetic retinal diseases.

Required Literature:

1. Kanski, J. J. (2019). Clinical Ophthalmology: A Systematic Approach (9th ed.).
2. Cerovski, B. et al. (2015). Oftalmologija i optometrija. Stega tisak d.o.o.
3. Kanski, J. J. (2003). Klinička oftalmologija (5th ed.).

Course title: Technology of Devices in Optometry

Course Code:
OP111

Semester:
1

Lectures + Exercises + Seminar:
2 + 0 + 0

Total Hours:
30

ECTS Credits:
5

Course Objective:

To acquire knowledge of the principles and operation of devices used in optometry; to recognize potential risks associated with the use of certain medical devices; and to apply rules and methods for their safe use.

Course Content:

Physical principles of medical technology. Optical and optometric diagnostic instruments – OCT, pachymeter, biometer, topographer, visual field analyzer: components, operating principles, and imaging documentation. Fundamentals of ultrasound. Legislative framework for medical devices and regulations related to their use in optometric practice.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

- 1.Explain the basic operating principles of devices used in optometry.
- 2.Compare the efficiency of different devices used in specific measurements.
- 3.Describe the working principle of individual optometric and ophthalmic instruments.

Required Literature:

- 1.Kaschke, M. et al. (2014). Optical Devices in Ophthalmology and Optometry: Technology, Design Principles, and Clinical Applications

Course title: Vision Training

Course Code:
OP201

Semester:
2

Lectures + Exercises + Seminar:
1 + 0 + 2

Total Hours:
45

ECTS Credits:
6

Course Objective:

To acquire knowledge about the role of vision training in improving the function of the visual system and its mechanisms as an alternative form of visual therapy applicable in optometric practice. Students will learn to design individualized vision exercise programs, monitor progress, and evaluate the effectiveness of visual training.

Course Content:

Various aspects of vision therapy in optometric practice. Assessment and therapeutic possibilities for accommodative dysfunctions. Evaluation and treatment of vergence dysfunctions. Vision problems related to learning and optometric assessment of visual performance.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

- 1.Explain the role of vision training in improving visual system performance and rehabilitation.
- 2.Compare the applicability of different methods of vision training.
- 3.Develop an individualized vision training plan.
- 4.Analyze vision training results and evaluate their effectiveness.

Required Literature:

- 1.Evans, B. (2007). Binocular Vision Anomalies (5th ed.).

Course title: Pregnancy and the Eye

Course Code:

OP312

Semester:
3

Lectures + Exercises + Seminar:
2 + 0 + 1

Total Hours:
45

ECTS Credits:
5

Course Objective:

To acquire fundamental knowledge about physiological changes in the eyes during pregnancy, pathological changes and ocular disorders related to pregnancy, as well as the possible effects of normal and complicated pregnancies on pre-existing eye diseases. The course also covers guidelines for the use of ophthalmic medications during pregnancy and breastfeeding.

Course Content:

Hormonal, metabolic, hemodynamic, vascular, and immunological adaptations and changes occurring during pregnancy that may affect ocular function. Postpartum ocular changes and their manifestations. Theoretical knowledge about physiological and pathological ocular changes associated with pregnancy, the impact of pregnancy on pre-existing ocular conditions, and guidelines for the safe use of ophthalmic drugs during pregnancy and lactation.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

1. Identify risk groups of pregnant women who require specific ophthalmic monitoring, diagnostic evaluation, and, if necessary, treatment.
2. Recognize ocular changes and disorders related to pregnancy.
3. Demonstrate theoretical knowledge about the specific use of ophthalmic medications during pregnancy and breastfeeding.
4. Apply theoretical knowledge to assess potential risks and implications of ocular diseases and visual disorders in pregnant women.

Required Literature:

1. Kanski, J. (2019). Clinical Ophthalmology: A Systematic Approach (9th ed.).

Course title: The Role of Screening in Optometry

Course Code:
OP112

Semester:
1

Lectures + Exercises + Seminar:
2 + 0 + 1

Total Hours:
45

ECTS Credits:
5

Course Objective:

To acquire knowledge for the critical review of current literature related to optometric and ophthalmic public health. To provide understanding of the epidemiology of eye diseases and visual impairments. To develop an in-depth understanding of eye care needs in Croatia and globally, and to gain advanced knowledge of the national and international context of optometric public health.

Course Content:

Introduction to the concepts of epidemiology and public health. Optometric public health. Risk, incidence, and prevalence: weighing evidence. Research methods: types of study designs and the importance of systematic reviews. Definitions of visual impairment and blindness. Epidemiology of eye diseases. Factors affecting eye health: aging, lifestyle, ethnicity. Screening and surveillance of eye diseases. Workforce models and health economics. Commissioning of eye health services and the importance of data. Eye health promotion.

Learning Outcomes:

Upon successful completion of the course, students will be able to:

- 1.Explain the importance of optometric public health.
- 2.Critically evaluate the global burden of vision-related data.
- 3.Argue the importance of health economics in public health.
- 4.Critically present the advantages of eye care in the public health context.

Required Literature:

- 1.Johnston, G. J., Minassian, D. C., Weale, R. A., & West, S. K. (2012). Epidemiology of Ocular Disease (3rd ed.). Imperial College Press, London.

Course title: The Impact of Various Systemic Conditions on the Eye

Course Code:
OP304

Semester:
3

Lectures + Exercises + Seminar:
2 + 0 + 1

Total Hours:
45

ECTS Credits:
6

Course Objective:

To acquire knowledge of how changes in different body systems affect the eyes, and to implement this knowledge in eye examinations. Students will develop an understanding of the interconnection between systemic diseases and ocular manifestations.

Course Content:

Influence of various systemic conditions that most frequently affect the eye. Theoretical knowledge of the circulatory system and vascular disorders; autoimmune disorders; infectious disorders; endocrine/metabolic disorders; and disorders of the nervous system.

Learning Outcomes:

Upon successful completion of the course, students will be able to independently:

1. Relate the influence of the circulatory system to the eye.
2. Develop theoretical knowledge of the impact of the immune system on the eye.
3. Integrate theoretical knowledge of the impact of the endocrine system on the eye.
4. Associate the effects of infectious diseases with ocular manifestations.
5. Explain the influence of the nervous system on the eye.

Required Literature:

1. Kanski, J. J. (2019). Clinical Ophthalmology: A Systematic Approach (9th edition).
2. Cerovski, B. et al. (2015). Ophthalmology and Optometry. Stega tisak d.o.o.
3. Kanski, J. J. (2003). Clinical Ophthalmology (5th edition).

Course title: Introduction to Databases for Optometrists

Course Code:
OP211

Semester:
2

Lectures + Exercises + Seminar:
1 + 1 + 0

Total Hours:
30

ECTS Credits:
5

Course Objective:

The aim of this course is to provide an introductory overview of database management systems, with an emphasis on applications in optometry. It covers the fundamental concepts of database design, management, and use, utilizing SQL, with a focus on the practical handling of patient data, research findings, and clinical information. The course includes hands-on exercises based on real-world examples relevant to optometric practice. Students will also be briefly introduced to the basics of logical database design.

Course Content:

Introduction to databases. Understanding data models. Principles of database design. Relational data model and normalization. Introduction to SQL. Overview of database management systems. Data security and privacy. Backup and database recovery. Data warehousing and data mining in healthcare. Data visualization and reporting.

Learning Outcomes:

Upon successful completion of the course, students will be able to independently:

1. Build a basic conceptual model of a database.
2. Perform fundamental database operations such as queries, updates, and reporting.
3. Design simple databases relevant to optometric practice.
4. Implement adequate database security in a chosen management system.
5. Modify existing databases using a selected data manipulation language.
6. Use databases for research and data analysis in optometry.

Required Literature:

1. Maleković, M., & Rabuzin, K. (2016). Uvod u baze podataka. Fakultet organizacije i informatike, Varaždin.
2. Elmasri, R., & Navathe, S. B. (2015). Fundamentals of Database Systems. Pearson.

Course title: Visual Perception and Cognition

Course Code:

OP103

Semester:
1

Lectures + Exercises + Seminar:
2 + 0 + 1

Total Hours:
45

ECTS Credits:
6

Course Objective:

To acquire fundamental knowledge of human information processing, elements of visual perception, and their role in forming complex visual experience and cognition. To master the basic principles of psychophysical measurement and understand their importance in optometry.

Course Content:

Introduction to visual perception and human information processing. Theories of perception. Visual attention. Perception of light and color. Perception of shape and Gestalt principles of organization. Perceptual constancy. Perception of size, depth, and 3D vision. Perception of objects and scenes. Motion perception and perception during movement. Perceptual inference. The binding problem. Basic psychophysical methods and theories. Signal detection theory.

Learning Outcomes:

Upon successful completion of the course, students will be able to independently:

- 1.Explain the main theoretical approaches to perception.
- 2.Identify the fundamental elements of visual perception.
- 3.Describe the role of experience in forming visual perception.
- 4.Distinguish between the quality of sensory input received by visual receptors and the quality of visual experience resulting from perceptual processes.
- 5.Conduct basic psychophysical measurement procedures.

Required Literature:

- 1.Goldstein, E. B., & Brockmole, J. R. (2017). Sensation & Perception (10th edition). Boston: Cengage Learning.
- 2.Goldstein, E. B. (2011). Osjeti i percepcija (Translation of the 7th edition). Naklada Slap.