Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering	Institute of Mechatronics and Vehicle Engineering

Subject title and code: **BMKTNOPBNF Optics** **Credits:** *0*

Full-time study 2025/2026 *ac. year* 2 *semester*

The course is available at: mechatronical engineering

Supervised by: Prof. Dr. Ruszinkó Endre	**Instructors:** Lourdes Ruiz Salvador

Prerequisite (neptun code): Informatics I, BMXIA1HBNE

Weekly number of lessons

Lecture: 0	Group seminar: 2	Lab: 0	Consultation:

Way of assessment: Midterm mark (Written and oral)

Online consultation *(in case it's required):* *... (BBB link)*

Edu. goal: This course introduces mechatronic engineering students to the fundamental principles of geometrical, physical, and wave optics with a focus on practical applications in sensing, measurement, industrial automation, and robotics. The course is designed to equip students with the skills necessary to select, integrate, and troubleshoot optical components within complex mechatronic systems.

Schedule

Education week	**Topics**
1.	Introduction to Optics and Requirements
2.	Optics History and Applications in Mechatronics
3.	Physics and Mathematics Basics
4.	Geometric Optics Basics 1
5.	Geometric Optics Basics 2
6.	Test 1
7.	Advanced Geometric Optics 1
8.	Advanced Geometric Optics 2
9.	Wave Optics 1
10.	Wave Optics 2
11.	Quantum Optics and Technical Applications 1
12.	Quantum Optics and Technical Applications 2
13.	Test 2
14.	Test retake

Mid-semester requirements

Test		Assignment to be submitted		Lab measurements	
amount	dates	amount	deadlines	amount	dates
2	weeks 6,13	1	week 13	8	2,3,4,5,7,8,9,11

According to the HKR attendance of group seminars and lab exercises are mandatory.

Other requirements for participation in sessions not covered by the regulations and restrictions on substitutions:
During the semester, in accordance with the schedule above, a student can make up one of the midterms if they have a valid official absence note (from a doctor or from a coach).

Test		Assignment to be submitted		Szöveg beírásához kattintson vagy koppintson ide.	
maximum points available	minimum score required to pass /test	maximum points available	minimum score required to pass / assignment	maximum points available	minimum score required to pass /lab

60points	30points	30points	15points	10points	-points

Total number of points achievable in semester: …points				
Grading thresholds	**satisfactory** 40 % and above	**average** 55 % and above	**good** 70 % and above	**excellent** 85 % and above
Other evaluation criteria: During the semester, in accordance with the schedule above, a student can make up the theory midterm if they have a valid official absence note (from a doctor or from a coach), or it was unsuccessful.				
Receive a signature denied entry:	The signature will be denied to that student who misses a midterm and has no absence note to justify their non-attendance, fails to submit the project assignment, or misses more classes than allowed by HKR.			
Required references:	Moodle Lecture Notes, Optics by Hecht E.			
Recommended references:				
Quality assurance methods of the subject:				

Things, that are not included, can be found within the regulations of Óbuda University.