Course Information

COURSE INFORMATION

Course Title	Code	Semester	L+U Hour	Credits	ECTS
Optical desihn	FİZ406	8. Semester	3 + 0	3.0	7.0

Prerequisites	None

Language of Instruction	English
Course Level	Bacheclor's Degree (First Cycle)
Course Type	Elective
Mode of delivery	Face to face
Course Coordinator	Assist. Prof. Dr. Mustafa KURT
Instructors	
Assistants	
Course Objectives	This course aims to teach geometric optics, Lineer algebra for optic system, Introduction to optical design program ZEMAX, investigate optical component and install to the software, optical aberrations
Course Content	Geometric Optic, Lineer algebra for optic, Introduction to Optical Design software ZEMAX, Paraxial ray tracing. Stops, pupils, glass and landscape lenses, Aberrations in general and Merit functions, Spherical aberrations, chromatic aberrations and aberration balancing, Coma, astigmatism, Field curvature, Field flattener, Distortions, achromats, bending achromats and large air-spaced achromat, Field lens and windows, Mirrors and corrector plates, Design a Project 1,
Course Learning Outcomes	1) Invatigate of optical component and gain the ability of analyze to any optical system 2) learn the principal of camera and light analyzing system and determine the basic parameter of optical design 3) investigate the optical design program ZEMAX. 4) invastigate optical component used in optical design. 5) understand optical abberations. 6) explain optical analyze results.. 7) make simple optical design.

WEEKLY COURSE CONTENT

Week	Topics	Teaching and Learning Methods and Techniques	Study Materials
1. Week	Geometric Optic	Face to faceLecture	
2. Week	Lineer algebra for optic	Face to faceLecture	
3. Week	Introduction to Optical Design software ZEMAX.	Face to faceLecture	

Quick Access

Physics
- Qualification Awarded
- Level of Qualification
- Qualification Requirements and Regulations
- Specific Admission Requirements
- Recognition of Prior Learning
- Profile of the Program
- Program Key Learning Outcomes
- Occupational Profile of Graduates
- Access to Further Studies
- Course Structure & Credits
- Exam Regulations & Assessment & Grading
- Graduation Requirements
- Mode of Study
- Programme Director(or Equivalent)
- Evaluation Questionnaire
- TYYÇ

Course Information
- Course Information
- Weekly Course Content
- Resources
- Course Category
- CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES
- ECTS credits and course workload

4. Week	Paraxial ray tracing.	Face to faceLecture	
5. Week	Stops, pupils, glass and landscape lenses.	Face to faceLecture	
6. Week	Aberrations in general and Merit functions	Face to faceLecture	
7. Week	Spherical aberrations, chromatic aberrations and aberration balancing.	Face to faceLecture	
8. Week	Coma, astigmatism,	Face to faceLecture	
9. Week	Field curvature.	Face to faceLecture	
10. Week	Field flattener.	Face to faceLecture	
11. Week	Distortions, achromats, bending achromats and large air-spaced achromat.	Face to faceLecture	
12. Week	Field lens and windows	Face to faceLecture	
13. Week	Mirrors and corrector plates	Face to faceLecture	
14. Week	Design a Project 1	Face to faceLecture	
15. Week	Review	Face to faceLecture	
16. Week	Final Exam	Written Exam	

RESOURCES

Recommended Sources
Introduction to Optics, Pedrotti, ISBN: 978-0131499331
Introduction to Lens Design, Joseph M. Geary, ISBN-13: 978-0943396750
Optik, 4. Baskı, E. Hecht, ISBN:975-6885-02-5

ASSESSMENT

Measurement and Evaluation Methods and Techniques
Mid-term, Final exam, Quiz, Project

COURSE CATEGORY

Course Category	Percentage
Area of Specialization Courses	% 100

CONTRIBUTION OF COURSE LEARNING OUTCOMES TO PROGRAMME OUTCOMES

Programme Outcomes	Contribution Level	DK1	DK2	DK3	DK4	DK5	DK6	DK7
PY1	4	4	4	4	4	4	4	4
PY2	3	3	3	3	3	3	3	3
PY3	4	4	4	4	4	4	4	4
PY4	5	5	5	5	5	5	5	5
PY5	3	3	3	3	3	3	3	3
PY6	4	4	4	4	4	4	4	4
PY7	5	5	5	5	5	5	5	5
PY8	2	2	2	2	2	2	2	2
PY9	3	3	3	3	3	3	3	3
PY10	2	2	2	2	2	2	2	2

PY11	4	4	4	4	4	4	4	4
PY12	4	0	0	0	0	0	0	0
PY13	3	3	3	3	3	3	3	3
PY14	2	2	2	2	2	2	2	2
PY15	3	3	3	3	3	3	3	3

*DK = Course's Contrubution.

	0	1	2	3	4	5
Level of contribution	None	Very Low	Low	Fair	High	Very High

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ECTS CREDITS AND COURSE WORKLOAD

Event	Quantity	Duration (Hour)	Total Workload (Hour)
Class Hours (14 weeks)	14	3	42
Presentation/Seminar	1	10	10
Final Exam Preparation	1	25	25
Mid Term Exam Preparation	1	20	20
Research&Project	1	25	25
Assignment 1	5	10	50
Final Exam	1	4	4
		Total Workload	176
		Total Workload / 25.5 (s)	6.90
		ECTS Credit of the Course	7