Jordan University of Science and Technology
Faculty of Science & Arts
Physics Department

PHY481 Physical Optics
Summer Semester 2023-2024

Course Catalog
3 Credit Hours. Mathematics of wave motion. Electromagnetic theory of light, Fresnel Coefficients, optics of thin films. Polarization. Nature of polarized light, polarizers, Dichroism, Birefringence, retarders, Faraday rotation, Kerr effect, Optical activity, John metrics. Interference of two beams, interference of more than two beams, Mich. Interferometer, Fabry-Perot interferometer, diffraction. Theory of diffraction. Diffraction from slits and apertures. Diffraction Gratings
Teaching Method: On Campus

Text Book	
Title	Optics
Author(s)	Miles V. Klein, Thomas E. Furtak
Edition	2nd Edition
Short Name	Ref1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref2	Fundamental of Optics	Francis Jenkins, Harvey White	4th Edition	

Instructor	
Name	**Dr. Mouath Shatnawi**
Office Location	Ph3-Level1
Office Hours	Sun : 10:00 - 11:30 Mon : 10:00 - 11:30 Tue : 10:00 - 11:30 Wed : 10:00 - 11:30
Email	mgshatnawi@just.edu.jo

Class Schedule & Room

Section 1:
  Lecture Time: Sun, Mon, Tue, Wed : 08:30 - 10:00
  Room: NF39

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
922820	PHY282 Optics	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Wave equation and types of waves	
Week 2	Electromagnetic theory of light and Fresnel?s equations	
Week 3	Superposition of waves	
Week 4	Polarization of light Dichroism, Birefringence, retarders,	
Week 5	Interference of two beams and interference of more than two beams	
Week 6	Theory of diffraction	
Week 7	Diffraction from slits and apertures and Diffraction grating	
Week 8	Discussion and solving problems	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand the wave equation and the wave nature of light	30%	
Understand the nature of polarized light and express polarizers in the form of matrices.	30%	
Understand the interference of two waves and the diffraction	40%	

Relationship to Program Student Outcomes (Out of 100%)					
SLO1(K1S1)	SLO2(S23C1)	SLO3(C24)	SLO4(C3)	SLO5(C4)	SLO6(S2C3)

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