The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Optics I
2	Course number	0302221
3	Credit hours (theory, practical)	2 theory
	Contact hours (theory, practical)	0
4	Prerequisites/corequisites	302112
5	Program title	Physics
6	Program code	0302
7	Awarding institution	The University of Jordan
8	Faculty	Faculty of Science
9	Department	Department of Physics
10	Level of course	2nd year
11	Year of study and semester (s)	Every year/1st Semester
12	Final Qualification	
13	Other department (s) involved in teaching the course	None
14	Language of Instruction	English
15	Date of production/revision	

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

Prof. Tareq Hussein

Office hours: 2 hours/week depending on the semester and teaching load of the coordinator

Office: Physics 209

Ext: 22060

Email: t.hussein@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

18. Course Description:

As stated in the approved study plan.

The course *Optics I* (0 302 221) is dedicated to make the prospective student familiar with nature and characteristics of light, geometrical, and some applications of the wave-like behaviour.

Specifically, the topics include:

- Nature of Light
- Geometrical Optics
- Huygens's and Fermat's Principles
- Wave Equations, Superposition of Waves, Interference of Light, and Optical interferometry
- Production of Polarized Light
- Fraunhofer Diffraction and Diffraction Grating.

19. Course aims and outcomes:

A- Aims:

The main objective is to make the prospective student familiar with the nature of light, behaviour, and characteristics.

B- Intended Learning Outcomes (ILOs):

By the end of this course, the students will be able to:

- Describe the Nature of Light.
- Explain the image formation in lenses and mirrors.
- Elaborate the particle-wave duality of light and its applications.

20. Topic Outline and Schedule:

- Nature of Light (Chapter 1, sections 1–3)
- Geometrical Optics (Chapter 2, sections 1–11)
- Optical Instrumentation – Prism (Chapter 3, section 3)
- Wave Equations (Chapter 4, sections 1–6, 8, and 9)
- Superposition of Waves (Chapter 5, sections 1–6)
- Interference of Light (Chapter 7, sections 1–8)
- Optical Interferometry (Chapter 8, sections 1–4)
- Fraunhofer Diffraction (Chapter 11, sections 1–6)
- The Diffraction Grating (Chapter 12, sections 1–4)

21. Teaching Methods and Assignments:

Development of ILOs are promoted through the following teaching and learning methods:

The teaching method used in this course is interactive where students participate in topics discussion and problem solving.

22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Exams.

23. Course Policies:

A- Attendance policies:

All students are obliged to attend the course according to the university rules of attendance.

B- Absences from exams and handing in assignments on time:

The instructor will approve excused absences. He will also arrange a make-up for the absent students.

C- Health and safety procedures:

This is based on the university general rules.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

This is based on the university general rules.

E- Grading policy:

The students are expected to interactively participate in this course through discussion and problem solving. The evaluation will be as follows:

- Quiz 20%
- Midterm 30%
- Final Exam 50%

F- Available university services that support achievement in the course:

Online teaching. eLearning/Moodle and Microsoft Teams.

24. Required equipment:

IT tools for online lectures.

25. References / Textbooks:

Textbook: Introduction to Optics, 3rd Edition (2014), by F. L. Pedrotti, L. M. Pedrotti, and L. S. Pedrotti.

Additional references:

Optics, 5th Edition (2017), by E. Hecht

Schaum's outlines - Optics, by E. Hecht (McGraw-Hill).

26. Additional information:

Name of Course Coordinator: ----------Signature: ---------- Date: ---------- Head of curriculum committee/Department: ---------- Signature: ----------

Head of Department: ---------- Signature: ----------

Head of curriculum committee/Faculty: ---------- Signature: ----------

Dean: ---------- -Signature: ----------

Copy to:
Head of Department
Assistant Dean for Quality Assurance
Course File