



Course Specifications

Institution:	Zulfi college of education .
Academic Department	Physics Department
Programme :	Physics Department
Course :	Laser physics
Course Coordinator :	Dr.Ismat Ali.
Programme Coordinator :	Dr.Nagwa Ibrahim..
Course Specification Approved Date :	21./ 12 / 1436 H <input type="checkbox"/>



A. Course Identification and General Information

1 - Course title :	Laser physics	Course Code:	PHYS424
2. Credit hours	(3hours)		<input type="checkbox"/>
3 - Program(s) in which the course is offered:	.....physics <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		
4 – Course Language :	.....Arabic..... <input type="checkbox"/>		
5 - Name of faculty member responsible for the course:	...Dr. Ismat Ali..		
6 - Level/year at which this course is offered :	Eighth		
7 - Pre-requisites for this course (if any) :	<ul style="list-style-type: none"> • PHYS413 		
8 - Co-requisites for this course (if any) :	<ul style="list-style-type: none"> •<input type="checkbox"/> 		
9 - Location if not on main campus :	(.....) <input type="checkbox"/>		
10 - Mode of Instruction (mark all that apply) <input type="checkbox"/>			
A - Traditional classroom <input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> What percentage? <input type="checkbox"/>	100..... % <input type="checkbox"/>
B - Blended (traditional and online) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> What percentage? <input type="checkbox"/> % <input type="checkbox"/>
D - e-learning <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> What percentage? <input type="checkbox"/> % <input type="checkbox"/>
E - Correspondence <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> What percentage? <input type="checkbox"/> % <input type="checkbox"/>
F - Other <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> What percentage? <input type="checkbox"/> % <input type="checkbox"/>
Comments : <input type="checkbox"/>		

B Objectives

What is the main purpose for this course?

The fundamental theories of general optics and properties of optic . Emission and absorption of light, Einstein relations, distribution inverted, gain coefficient, optical resonators, laser patterns. He-Ne laser, Nd-YAG. Characteristics of lasers: the spectral line width of the laser, the beam breakthrough, thread Beam, Flashing 'assembling lasers, switches coefficient Q, doubling the frequency, phase pairing.

Applications of lasers: medical applications, industrial, military, scientific, standard, Holography, communications





Briefly describe any plans for developing and improving the course that are being implemented :The use of interactive lecture halls

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C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
The fundamental theories of general optics and properties of optic	2	4
Characteristics of lasers: the spectral line width of the laser, a breakthrough beam, the beam coherence, gloss',	2	4
Interaction Material with Photons(processes absorbance, emission, stimulated)	2	4
Emission and absorption of light	1	2
Einstein relations, distribution inverted, gain coefficient	2	4
Population inversions Optical resonators	2	4
Laser patterns	1	2
Laser applications (He-Ne and Nd-Yag Laser)	2	4
Revision	1	2

Second: practical lessons:

Topics	N0.
Defined laser device and its components and production of the laser beam	First
Set the wavelength of the laser beam using the interferometer to Mickelson .	The second
Determined coefficient for the laser beam using the interferometer to Mickelson .	Third
Determined refractive index of the glass using a laser beam interferometer for Mickelson .	Fourth
Determined thickness of a rectangular glass laser beam using the interferometer to Mickelson .	Fifth
Determined laser diffraction using human hair using .	sixth
Laser diffraction study (1 (	Seventh
Laser diffraction study (1 (	Eighth
Laser diffraction study (2 (	ninth
General Review	Tenth
Final practical test	Twelfth



2. Course components (total contact hours and credits per semester):

<input type="checkbox"/>	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	.15. <input type="checkbox"/>
Credit	45 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	...45. <input type="checkbox"/>

3. Additional private study/learning hours expected for students per week.

.3hours.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Identify the laser	Debate and discussion within the classroom tests.	Tests.
1.2	Identify laser applications in public life	Give explanations examples for the Anterior lectures	Give the student calendar questions after each lecture
١,٣	Identify the basis for the production of laser	Scientific activities and cooperation within the halls	Responding to the student by the cost of duties
2.0	Cognitive Skills		
2.1	The definition of the student on the concept of laser	Debate and discussion within the classroom tests.	Give the questions to see how the student's understanding
2.2	The student applied laser in everyday life	Debate and	Give the





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		discussion within the classroom tests.	questions to see how the student's understanding
٢,٣	To know the student the bases for the production of laser	Debate and discussion within the classroom tests.	Give the questions to see how the student's understanding
3.0 Interpersonal Skills & Responsibility			
3.1	Division students to groups to conduct joint research group	Commissioning analysis and interpretation of research in the ring discussion for, discuss the collective search.	Know the contribution of each student in the interpretation and analysis of search through dialogue and discussion.
3.2	Skills take responsibility and lead the team	Assigning some students, to lead research groups.	Know the contribution of each student's leader of the team through dialogue and discussion.
4.0 Communication, Information Technology, Numerical			
4.1	Ability to use the World Wide Web in search of the latest findings of modern science	.....	.....
4.2	- Ability to use computers in research writing and presentation using power point	.....	.....
٤,٣	use - The computers in the provision of research and scientific reports required	.....	.....
٤,٤	- use the modern techniques in scientific research	.....	.....
٤,٥	- The ability to analyze research information required	.....	.....
5.0 Psychomotor			
5.1	.not require in this course .	.....	.....

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	. Test Mid term .	Seventh week.	.20%.





2	..Final test	.fifteenth week.	40%
3	Practical final test	Thirteenth week	20%
4	Quiz +attendance +Home work		20%

D. Student Academic Counseling and Support

Is providing consultancy and academic advice to students where there is a professor in office hours to 4 hours per week

E. Learning Resources

<p>1. List Required Textbooks : Lasers : principles and applications , by J.Wilson and J.F.B. Hawkes Prentice Hall, 1992</p>
<p>2. List Essential References Materials :</p>
<p>3. List Recommended Textbooks and Reference Material : Lasers : principles and applications , by J.Wilson and J.F.B. Hawkes Prentice Hall, 1992</p>
<p>4. List Electronic Materials :</p>
<p>5. Other learning material : Attend lectures related Attend workshops and conferences</p>

. Facilities Required

<p>1. Accommodation Classrooms capacity of 50 student ..</p>
<p>2. Computing resources Hall of interactive.</p>
<p>3. Other resources</p>





G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

Strategies to obtain feedback from students regarding the effectiveness of teaching:

Through discussions.

Distribution of questionnaires to the students at the end of the semester to get special evaluate the decision.

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2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor :

. Continuous assessment of the extent to which students achieve the standards.....

3 Processes for Improvement of Teaching :

The provision of modern tools necessary for learning

- Exchange of experiences both internal and external

Taking the recommendations of the audit findings with the decision.

Taking the recommendations of the Commission for Academic Accreditation department.

Management guidance department and dean of the college on the performance of a faculty member on the basis of direct observation and opinions of students

4. Processes for Verifying Standards of Student Achievement

Review of papers that have been corrected by the professor and at the request of the head of the academic department and the formation of a special committee to review as determined by senior management when needed or requested by the requesting Dean at the end of each semester.

Will pass to the achievement of the students of standards.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

1-Periodic review of the decision by a professor of art and faculty members plan to amend the decision.

2-Review and update the article topics commensurate with the needs of the labor market.

3-update the content to be in line with recent developments in the field.....

Course Specification Approved

Department Official Meeting Date 14 / 2 / 1437 H

Course's Coordinator

Dr . Ismat Ali Ahmed

Department Head

Dr. N. Ibrahim

