



# **COURSE SPECIFICATION**

**334 Phys-2. (Physics practical optics and waves )**

**1434/1435**

## **Course Specification**

<b>Institution: King Khaled University</b>
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<b>College/Department : Faculty of science/ physics department</b>
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### **A Course Identification and General Information**

<b>1. Course title and code:334 Phys-2.</b>
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<b>2. Credit hours: 4(3+1)</b>
<b>3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)</b>  <b>The Academic program at the Dept. Physics,</b>
<b>4. Name of faculty member responsible for the course Mr. Ashraf M. Emara, and others.</b>
<b>5. Level/year at which this course is offered : third year / level 5</b>
<b>6. Pre-requisites for this course (if any) : Nothing</b>
<b>7. Co-requisites for this course (if any): 231 phys..</b>
<b>8. Location if not on main campus: Department of physics /C building / university city/ Girigr /Abha.</b>

## **B Objectives**

<b>1 - Capacity Development of the student in the search for different physical phenomena.</b>
<b>2 - Detection and analysis of phenomena and write their own reports.</b>
<b>3 - Identifying the hardware and how to deal with it.</b>
<b>4 - Establishing the theoretical concepts received in lectures and to prove it in practice.</b>
<b>2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)</b>

- Increasing use of references available on the network or through the Information Technology.
- Use Web-CT to send information.
- Work on a regular basis to change the list of references which may include some of the original electronic articles.
- Use [www.wiki.com](http://www.wiki.com) and <http://en.wikipedia.org> as reference sources may require students to get more information about some of the topics in the field of modern physics and atomic.

**C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)**

<b>1 Topics to be Covered</b>		
<b>Topic</b>	<b>No of Weeks</b>	<b>Contact hours</b>
Vibration tendons and standing waves (3)	1	4
Doppler Effect	1	4
Refractive index of transparent materials	1	4
Experiments of mirrors and Lenses	1	4
Studies of spectrometer and prism	1	4
Interference of laser and resolving power of eye	1	4
Laser Diffraction	1	4
Interference by reflection on thin films (newten rings)	1	4
Interference by division of amplitude	1	4
Diffraction grating and Spectrophotometric analysis	1	4
Polarization by reflection and Brewster angle	1	4
Model of the eye and how to correct defects of vision	1	4
Polarization by selective absorption and a constant rotation	1	4

<b>2 Course components (total contact hours per semester): 52</b>			
<b>Lecture: 52</b>	<b>Tutorial:</b> _____	<b>Practical/Fieldwork/Internship: 52</b>	<b>Other:</b> _____

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**3. Additional private study/learning hours expected for students per week. (This should be an average :for the semester not a specific requirement in each week)**

- The program includes number of hours for tutorials 18 hrs in each term.**
- Searching in the Internet and Databases.**

**4. Development of Learning Outcomes in Domains of Learning**

**For each of the domains of learning shown below indicate:**

- A brief summary of the knowledge or skill the course is intended to develop;**
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;**
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.**

**a. Knowledge**

**(i) Description of the knowledge to be acquired**

- 1 - Capacity Development of the student in the search for different physical phenomena.
- 2 - Detection and analysis of phenomena and write their own reports.
- 3 - Identifying the hardware and how to deal with it.
- 4 - Establishing the theoretical concepts received in lectures and to prove it in practice.

**(ii) Teaching strategies to be used to develop that knowledge**

- Lecturers.                                    – scientific dialogue**
- self learning                                 - learning through right and wrong**
- scientific research.**

**(iii) Methods of assessment of knowledge acquired**

<ul style="list-style-type: none"> <li>- Mid – term exam</li> <li>- Homework</li> <li>- Final exam</li> <li>- Attendance.</li> </ul>
<p><b>b. Cognitive Skills</b></p>
<p><b>(i) Cognitive skills to be developed</b></p> <ul style="list-style-type: none"> <li>-Tutorials and solving problems related to course contents.</li> <li>- Discussing typical and lengthy problems manually and using special softwares in Optical physics.</li> </ul>
<p><b>(ii) Teaching strategies to be used to develop these cognitive skills</b></p> <ul style="list-style-type: none"> <li>-A number of homework is assigned to students.</li> <li>- Solving selected problems in Thermal Physics.</li> <li>- Aspects should cover some problems related to education and industry.</li> </ul>
<p><b>(iii) Methods of assessment of students cognitive skills</b></p> <ul style="list-style-type: none"> <li>- A student follow-up is maintained using quick questions style.</li> <li>- Encouraging the student to increase the lecture attendance.</li> <li>- Adopting quizzes or fast exam.</li> </ul>
<p><b>c. Interpersonal Skills and Responsibility</b></p>
<p><b>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</b></p> <ul style="list-style-type: none"> <li>- Academic supervision is required.</li> <li>- A cooperation routine work should be maintained with other academic members.</li> </ul>
<p><b>(ii) Teaching strategies to be used to develop these skills and abilities</b></p>

<ul style="list-style-type: none"> <li>- Students must learn how to prepare a scientific report.</li> <li>- Open a general discussion with students in the area of educational issues.</li> </ul>
<p><b>(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility</b></p> <ul style="list-style-type: none"> <li>- None</li> </ul>
<p><b>d. Communication, Information Technology and Numerical Skills</b></p>
<p><b>(i) Description of the skills to be developed in this domain.</b></p> <ul style="list-style-type: none"> <li>- Submitting reports or essays and exchanging information between the students through the conventional ways.</li> <li>- Or by using the databases and the electronic mail.</li> </ul>
<p><b>(ii) Teaching strategies to be used to develop these skills</b></p> <ul style="list-style-type: none"> <li>- Using computers.</li> <li>- Using special educational packages.</li> </ul>
<p><b>(iii) Methods of assessment of students numerical and communication skills</b></p> <ul style="list-style-type: none"> <li>- Preliminary evaluation is required.</li> <li>- Final evaluation is subjected to various skills e.g. student communication until the final tests.</li> </ul>
<p><b>e. Psychomotor Skills (if applicable)</b></p>
<p><b>(i) Description of the psychomotor skills to be developed and the level of performance required</b></p> <ul style="list-style-type: none"> <li>- None</li> </ul>
<p><b>(ii) Teaching strategies to be used to develop these skills</b></p> <ul style="list-style-type: none"> <li>- None</li> </ul>

**(iii) Methods of assessment of students psychomotor skills**

- None

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

Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Mid termI	After 6 weeks	% 15
3	Mid termII	After 12 weeks	% 15
5	Reports	Every week	% 20
6	Final examination	End of the term	% 50

**D. Student Support**

**1. Arrangements for availability of faculty for individual student consultations and academic advice. (include amount of time faculty are available each week)  
Three office hours in two days per week.**

**E Learning Resources**

<b>• Required Text(s): Fundamentals of Optical Physics</b>
<b>2. Essential References</b>
<b>3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)</b>
<b>4-.Electronic Materials, Web Sites etc Springer , sciencedirect</b>
<b>5- Other learning material such as computer-based programs/CD, professional standards/regulations</b>

-None

## F. Facilities Required

<p>Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)</p> <p><b>A Computer Lab. With 20 PCs for 20 students.</b></p>
<p>1. Accommodation (Lecture rooms, laboratories, etc.)</p> <p><b>Main hall for lecturing 50 students.</b></p>
<p>2. Computing resources</p> <p><b>20 computer sets are needed for network connection.</b></p>
<p>3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)</p> <p><b>Providing educational facilities and models in the lecture.</b></p>

## G Course Evaluation and Improvement Processes

<p><b>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</b></p> <p><b>The student should evaluate the course together with the instructor.</b></p> <ul style="list-style-type: none"><li>- An academic evaluation is required continuously.</li><li>- Renewing the course contents periodically.</li></ul>
<p><b>2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department</b></p> <ul style="list-style-type: none"><li>- Evaluating the whole educational system through R &amp; D mechanism.</li><li>- Evaluating the course at the departmental levels.</li><li>- Evaluating the course outside the department.</li></ul>
<p><b>3 Processes for Improvement of Teaching</b></p> <ul style="list-style-type: none"><li>- A comparison of the course level should be made with similar courses at foreign universities.</li><li>- Publishing an article related to health physics education.</li></ul>
<p><b>4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent faculty member of a sample of student work, periodic exchange and remarking of a sample of assignments with a faculty member in another institution)</b></p> <p>- None</p>
<p><b>5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</b></p> <ul style="list-style-type: none"><li>- Latest published and specialized books in Optical Physics.</li><li>- Contributing to conferences related to essential and university</li></ul>



**educational systems.**