

University: Al Azhar
Faculty: Medicine
Department: Ophthalmology

Course Specification

1. Course Data		
Course Code : 07-700-ophth-DP	Course Title: Optics	Academic Year / level: 1 st part diploma Ophthalmology
Specialization:	No. of Instructional Units:	
	Lecture	1.5hr/wk
	Practical	1hr/wk
	Seminar	1hr/wk

2. Course Aim	<p>The aim of the course is to provide the postgraduate with the advanced knowledge and skills through providing:</p> <ul style="list-style-type: none"> • Recent scientific knowledge of optical principle of light, its properties and their application in modern ophthalmic practice as: ophthalmic instruments, visual aids, and refractive surgery. • Skills of effective communication. • Appropriate attitudes and professionalism.
3. Intended Learning Outcome (ILOs)	
a. Knowledge and Understanding:	<p>At the end of the program, the student should be able to:</p> <p>A1. Recognize optical knowledge relevant to ophthalmic practice.</p> <p>A2. Understanding basic principle of vergence, accommodation, prisms, lenses and ray tracing, visual acuity testing and their application in patient's examination and in treatment as in: refractive surgery, low vision aids, prescribing glasses.</p> <p>A3. Identify principles of clinical audit.</p> <p>A4. Recent advances in the field of practice as in refractive surgery.</p>
b. Intellectual Skills:	<p>At the end of the program; the student should be able to:</p> <p>B1. Integrate basic optical science with clinical care.</p> <p>B2. Reason deductively in solving clinical problems:</p> <p>a. Recognize, define and prioritize problems.</p> <p>b. Interpret, analyze, and evaluate information objectively, recognizing its limitations.</p> <p>B3. Integrate the results of history, physical and investigational</p>

	<p>findings by using lenses, prisms, and ophthalmic instruments into a meaningful diagnostic formulation.</p> <p>B4. Construct appropriate management strategies for patients with refractive errors or poor vision including glasses, low visual aids and refractive surgical conditions.</p> <p>B5. Design an initial course for improvement of vision and treatment of amblyopia.</p>																																													
c. Professional Skills:	<p>At the end of the course; the students should be able to:</p> <p>C1. Demonstrate basic optical sciences practical skills relevant to future practice.</p> <p>C2. Take and record a structured, patient centered history.</p> <p>C3. Perform full physical examination of patients with refractive error or poor vision.</p> <p>C4. Formulate a management plan by prescribing glasses, contact lens, prisms or surgery.</p> <p>C5. Record patients ' data appropriately.</p>																																													
d. General Skills:	<p>At the end of the course ; the students should be able to:</p> <p>D1. Use information and communication technology effectively in the field of medical practice.</p> <p>D2. Retrieve, manage, and manipulate information by all means, including electronic means.</p> <p>D3. Present information clearly in written, electronic and oral forms.</p> <p>D4. Communicate ideas and arguments effectively.</p> <p>D5. Work effectively within a team and show ability to lead and direct the teamwork.</p>																																													
4. Course Content	<table border="1"> <thead> <tr> <th>Topics</th> <th>Lectures</th> <th>Clinical</th> </tr> </thead> <tbody> <tr> <td>Physical Optics</td> <td>3</td> <td>0</td> </tr> <tr> <td>Vergence</td> <td>1</td> <td>1</td> </tr> <tr> <td>Lenses and Ray Tracing</td> <td>2</td> <td>0</td> </tr> <tr> <td>Visual Acuity Testing, Refractive Error</td> <td>2</td> <td>1</td> </tr> <tr> <td>Lens Effectively and Vertex Distance</td> <td>2</td> <td>1</td> </tr> <tr> <td>Accommodation and Prescribing Bifocals</td> <td>2</td> <td>1</td> </tr> <tr> <td>Astigmatism, Aberrations, Distortions and Irregularities</td> <td>3</td> <td>1</td> </tr> <tr> <td>Contact Lenses</td> <td>1</td> <td>1</td> </tr> <tr> <td>Refractive Surgery, Intraocular Lenses</td> <td>1</td> <td>0</td> </tr> <tr> <td>Magnification and Telescopes</td> <td>2</td> <td>1</td> </tr> <tr> <td>Low Vision</td> <td>1</td> <td>1</td> </tr> <tr> <td>Prisms</td> <td>2</td> <td>1</td> </tr> <tr> <td>Prescribing Glasses</td> <td>2</td> <td>1</td> </tr> <tr> <td>Ophthalmic Instruments: Optical Principles</td> <td>2</td> <td>1</td> </tr> </tbody> </table>	Topics	Lectures	Clinical	Physical Optics	3	0	Vergence	1	1	Lenses and Ray Tracing	2	0	Visual Acuity Testing, Refractive Error	2	1	Lens Effectively and Vertex Distance	2	1	Accommodation and Prescribing Bifocals	2	1	Astigmatism, Aberrations, Distortions and Irregularities	3	1	Contact Lenses	1	1	Refractive Surgery, Intraocular Lenses	1	0	Magnification and Telescopes	2	1	Low Vision	1	1	Prisms	2	1	Prescribing Glasses	2	1	Ophthalmic Instruments: Optical Principles	2	1
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5. Teaching and Learning Methods	<ul style="list-style-type: none"> • Lectures and tutorials. • Practical and clinical cases. • Workshops. • Case Study. 																																													
6. Teaching and Learning Methods for Students with	Not applicable																																													

Special Needs	
7. Student Assessment:	
a. Procedures used:	<ul style="list-style-type: none"> • Final written exam. • Final oral exam. • Final practical exam.
b. Schedule:	
c. Weighing of Assessment:	<ul style="list-style-type: none"> • Final written exam: 25 degrees. • Final oral, practical, clinical exam: 25 degrees.
8. List of Textbooks and References:	
a. Course Notes	
b. Required Books (Textbooks)	<ul style="list-style-type: none"> • Optics. Bass M, Enoch JM, Lakshminarayanan V. Handbook of Optics; Vision and Vision Optics 3rd ed. New York: The McGraw-Hill Companies 2010.
c. Recommended Books	<ul style="list-style-type: none"> • Optics, Retinoscopy, and Refractometry. Ghai AK. Refraction, Dispensing Optics and Ophthalmic Procedures. Jaypee Brothers Medical Publishers 2013. Brooks CW, Borish IM. System for Ophthalmic Dispensing 3rd ed. Philadelphia: Butterworth-Heinemann, 2007.
d. Periodicals, Web Sites, ..., etc.	<ul style="list-style-type: none"> • British journal ophthalmology: http://www.BJO.com • Ophthalmology. • American journal ophthalmology. • Archieve Ophthalmology. • Egyptian journal ophthalmology: http://www.eos1902.com • Cataract and Refractive surgery. • http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1755-3768 • http://ophthalmology.blogspot.com/ • http://pubmed.com

Course Instructor:

Head of Department:

Prof. Dr.

Date: 1/11/2014