Quality Assurance Unit

Tanta University
Faculty of Medicine

Department of Medical Physiology

Course specifications

Medical Physiology for Ophthalmology Diploma & Master degrees First Part

2016/2017

Medical Physiology for Ophthalmology Diploma & Master degrees Course specifications

University: Tanta Faculty: Medicine Department: Medical Physiology

A- Administrative Information

- **Program title: Medical Physiology for Ophthalmology Diploma & Master degrees**
- **Department offering the program: Ophthalmology Department**
- **Departments responsible for the program: Ophthalmology Department &Medical Physiology**
- **Course Code: OPHT 7002 & OPHT 8002**
- **Academic year/ Level : 2016 /2017**
- **No. of Credit/taught hours: $2_{1/3}$ theoretical credit hour($2_{1/3}$ hour/week for 15 weeks)**
- **Authorization date of course specification: / /**

B- Professional Information

1- Overall Course aims:

Our course aim to:

- Acquire the bases and methods of medical researches
- Help the student/s to go in depth in the field of Ophthalmology through original medical researches.
- Develop analytical and critical methods when dealing with medical problem related to Ophthalmology.
- Teach medical knowledge to hypothesize new relations and explain pathogenesis of different Ophthalmology disorders.
- Acquire deep orientation about the current Ophthalmology problems, and up to date hypothesis explaining it
- Discuss professional problems and suggest innovative solutions

2- Intended learning outcomes (ILOs):

a. knowledge and understanding:

By the end of the course the graduate should be able to:

a1 -Specify selected topics in Medical Physiology of Ophthalmology at greater depth.

a2 -Explain the fundamental mechanisms of disease and the pathophysiologic basis of major human diseases.

a3 -Identify knowledge and understanding through a range of subjects relevant to your specific area

a4 -Recognize on the Medical Physiology underlying health and diseases

b. Intellectual skills:

By the end of the course the graduate should be able to:

b1 Demonstrate medical information related to ophthalmology to elicit new conclusions.

b2 Plan to solve medical problem related to ophthalmology

d. General transferable skills:

By the end of the course the graduate should be able to:

d.1. Communicate effectively with his colleagues and scientific institutes.

d.2. Solve problem using the basic computer skills which serve his career development

d.3. Apply self evaluation and specify his medical educational needs.

d.4. Use different learning resources to get knowledge and information.

d.5. Manage time and practice team working through collaboration with other specialties

d.6. Apply continuous medical education

3- Course contents:

Course title	Topic	No. of credit hours	No of Credit points	remarks
Medical Physiology	compulsory courses in applied Medical Physiology*	$2_{1/3}$ hs	7points	

***Detailed contents of the course topics. (Syllabus contents):**

List of formal lectures, tutorials and seminars (Special topics).

I. <u>Optics of Vision</u>

1. Physical Principles of Optics

a) Refraction of Light

b) Application of Refractive Principles to Lenses

c) Focal Length of a Lens

d) Formation of an Image by a Convex Lens

e) Measurement of the Refractive Power of a Lens—"Diopter

2. Optics of the Eye

a) The Eye as a Camera

b) Mechanism of "Accommodation"

c) Pupillary Diameter

d) Errors of Refraction

e) Visual Acuity

f) Determination of Distance of an Object from the Eye—"Depth Perception"

g) Ophthalmoscope

3. Fluid System of the Eye-Intraocular Fluid

a) Formation of Aqueous Humor by the Ciliary Body 623 Outflow of Aqueous Humor from the Eye

b) Intraocular Pressure

II. Receptor and Neural Function of the Retina

1. **Anatomy and Function of the Structural Elements of the Retina**
2. **Photochemistry of Vision**

a) Rhodopsin-Retinal Visual Cycle, and Excitation of the Rods
b) Automatic Regulation of Retinal Sensitivity— Light and Dark Adaptation

3. **Color Vision**

a) Tricolor Mechanism of Color Detection
b) Color Blindness

4. **Neural Function of the Retina**

a) Neural Circuitry of the Retina
b) Ganglion Cells and Optic Nerve Fibers
c) Excitation of the Ganglion Cells

III. Central NeuroMedical Physiology of Vision

1. **Visual Pathways**

a) Function of the Dorsal Lateral Geniculate Nucleus of the Thalamus

2. **Organization and Function of the Visual Cortex**

a) Layered Structure of the Primary Visual Cortex
b) Two Major Pathways for Analysis of Visual Information—(1) The Fast "Position" and "Motion" Pathway; (2) The Accurate Color Pathway

3. **Neuronal Patterns of Stimulation During Analysis of the Visual Image**

a) Detection of Color
b) Effect of Removing the Primary Visual Cortex

4. **Fields of Vision; Perimetry**
5. **Eye Movements and Their Control**

a) Fixation Movements of the Eyes
b) "Fusion" of the Visual Images from the Two Eyes

6. **Autonomic Control of Accommodation and Pupillary Aperture**

4- Teaching and learning methods:

4.1 Illustrated lectures.
4.2 Tutorial is scheduled and previously announced special topics from the curriculum are discussed in the tutorial.
4.3 Assignment to be prepared by the graduate in one of the special topic taught.
4.4 Seminars scheduled and previously announced to facilitate selection identification of their thesis.

- Each teaching method is designed to serve different educational goal, and together they provide an appropriate stimulating atmosphere for learning.

5- Student Assessment:

End semester final examination consists of:
5.1. Final written consists of one paper, 3 hours. With the co-requisite subjects The written is divided into 3 parts part1 short questions in the form (state, mention ,explain compare define etc). the 2nd part in problem solving question the 3rd part is MCQ questions to assess (a.1, a.2, a.3, a4).
5.2. Oral to assess (a.1, a.2, a.3,a4, & b.1,2, d.1,2,3,4,5,6)

6- Assessment schedule:

6.1. **End Semester Final one written qualifying examination**	At the end of the semester (60% of the total mark)
6.2. **oral qualifying examination**	After the written (40% of the total mark)

7- Weighing of assessments:

Grading system for End Semester written Exam:

Grade	%	Code	CGPA points
Excelent	95% or more	A	4.000
	90% to less than 95%	A-	3.666
Very Good	85% to less than 90%	B+	3.333
	80% to less than 85%	B	3.000
Good	75% to less than 80%	B-	2.666
	70% to less than 75%	C+	2.333
Satisfactory	65% to less than 70%	C	2.000
	60% to less than 65%	C-	1,666
Failed	55% to less than 60%	D+	1.333
	30% to less than 55%	D	1.000
	Less than 30%	F	0.000

Final comprehensive exam

Final exam	Final written	Final practical	Final oral	Total
Final comprehensive exam of Medical Physiology & biochemistry	30	10	10	50

- Final written examination consists of one paper, 3 hour s.
- Oral examination by two examiners

8- List of references:

8.1. Essential books (Textbooks):

- Guyton &Hall textbook of Human Medical Physiology and Mechanisms of Disease.
- Gannon (review of medical Medical Physiology).
- Vander's human Medical Physiology.

8.2. Recommended books:

- Applied Medical Physiology in intensive care by M.R. Pinsky (Editor), J. Mancebo (Editor), L. Brochard (Editor), Gran Hedenstierna 2009.
- An introduction to human disease: pathology & pathoMedical Physiology correlations by Leonard Crowley. Hardcover August 2009.
- Critical pathways in cardiovascular medicine: Second Edition Lippincott Williams & Wilkins.
- Applied Medical Physiology: A manual showing functions of the various organs in disease by Frederich Augustus Rhodes.

8.3. <u>Periodicals, Web:</u>

- www.tebawy.5u.com.
- http://bcs.whfreeman.com.
- http://www.bpcc.edu/sciencealliedhealth/humanMedical Physiologylinks.htmlhttp://bio–alive.com/animations/Medical Physiology.htm.
- Human Medical Physiology from cell to system By: Lauralee Sherwood.

9- Other resources/ facilities required for teaching and learning to achieve the above ILOs:

- All facilities required for teaching are available.

10- We certify that all of the information required to deliver this course is contained in the above specifications and will be implemented.

We verify that the above course and the analysis of students and external evaluator opinions are accurate.

Course coordinator and head of department
name……..signature……Date……

Head of quality assurance unit:
name……..signature……Date……