Quality Assurance Unit

Tanta University
Faculty of Medicine

Department of Ophthalmology

Course Specifications

Physiology , Diploma Degree (second semester)

2016-2017

University: Tanta *Faculty: Medicine* *Department: Ophthalmology*

A- Administrative Information

1- Program title: Master Degree, physiology, second semester

2- Department offering the program: ophthalmology department

3- Department responsible for the course: ophthalmology department.

4- Course code: OPHT 8002

5- Level: 1st part

6- No. of Credit / taught hours: 2credit hours

- **Lectures: 1.5credit hours=22.5 taught hours**
- **Practical: 0.5credit hours =15 taught hours**

B- Professional Information

1 – Intended learning outcomes (ILOs):

a- knowledge and understanding:

By the end of this program the candidate will be able to :
a1- identify the basic information about physiology of the human eye.

b-intellectual skills:

By the end of the course, students should be able to:
b1 -Solve the ophthalmological problems related to the physiology of the eye.

c-Professional &Practical Skills:

By the end of the course, students should be able to:
C1-Perform physiological tests of the eye.

d-General Transferable Skills:

By the end of this program the candidate will be able to;
d1- Use various communication skills.

2-Course contents:

- **Lectures: 1.5credit hours=22.5 taught hours**

- **Practical:** **0.5credit hours =15 taught hours**

❖ **Lectures:**

Name of the lecture	**Taught hours**
Physiology : • Cornea: - Physiology, Cell Biology And Biochemistry - Corneal Neovascularization - Corneal Pharmacology • ocular circulation: · Fine Structure And Blood-Ocular Barriers · Techniques For Measuring Ocular Blood Flow · Rate Of Blood Flow And Oxygen Supply · Control Of Circulation · Nervous Control Of Blood Flow · Effect Of Drugs On Blood Flow · Metabolic Control Of Ocular Blood Flow · Formation And Drainage Of Tissue Fluid In The Eye • aqueous, IOP: The Ciliary Epithelia · Aqueous Humor Formation · Composition Of Normal Aqueous Humor Factors Affecting Intraocular Pressure · Tonography • lens, accommodation: lens metabolism · carbohydrates and energy metabolism · water and electrolyte balance · non-electrolyte transport mechanism · lens proteins · lens lipids · glutathione and oxidation – reduction Accomodation And Presbyopia • pupil: Anatomy · Physiology	**(22.5h)** (1.5) (1) (1) (1) (1)

· Pharmacology Of The Pupil · Afferent Pupillary Defects · Efferent Pupillary Defects · Tonic Pupil · Pupillary Light-Near Association · Horner's Syndrome · Anisocoria	
• Visual acuity: Specification Of Stimulus · Physiologic Factors · Acuity Criteria · Minimum Angle Of Resolution · Factors Influencing Visual Acuity · Sinusoidal Grating Targets · Amblyopia.	(1)
• lacrimal system, The Tear Film-Structre And Formation · Production Of Tears · Clinical Correlations · Elimination Of Tears	(1)
• extraocular muscles, Anatomic Considerations · Actions Of Extraocular Muscles · Structure Of Extraocular Muscle Fibers · Pharmacology Of Extraocular Muscles · Types Of Ocular Movements · Supranuclear Control · Clinical Assessment Of Binocular Vision - Fusion - Diplopia	(3)
• Photometry PHYSICAL PROPERTIES Of LIGHT · PHOTOMETRY And Spectral Sensitivity Of The Eye · Additivity Of Luminance	(1)
• Vitreous Structure · Vitreous Development · Physiology And Function Of The Vitreous	(1)

· Biochemical Changes With Age And Injury • Retina: chemistry of outer segments {for i, ii, iii · lipid · protein · visual pigment ii. senses and turn over of outer segments · rod-protein and lipid distribution iii. visual pigment dynamics · bleaching sequence · regeneration of rhodopsin · vitamin a metabolism iv. effect of light on outer segment metabolism · dark adaptation · illumination v. chemical transmission · neurotransmitors vi. retinal metabolism · carbohydrate metabolism · dependants of erg potentials vii. retinal pigment epithelium · major function . · cellular biochemistry · metabolism	(3)
• Colour vision: · Color And The Visible Spectrum · Color Mixing And Complementary Wavelengths · Neural Encoding Of Color · Congenital Dyschromatopsias · Acquired Dyschromatopsias	(1)
• Entoptic phenomenon: · Entoptic Images · Purkinje Figures · The Blue Field Entoptic Phenomenon · Choriocapillary Circulation · Blue Arcs Of The Retina · Haidinger's Brushes	(1)
• Adaptation:	(1)

Mechanism Of Visual Adaptation · Theories Of Vision And Adaptation · Dark Adaptation And Regeneration Of Rhodopsin · Light Adaptation · Adaptation Of Photoreceptors · Adaptation In Bipolar Cells · Adaptation In Ganglion Cells · Automatic Gain Control · Clinical Disorders Of Visual Adaptation	
• Optic nerve: Normal Physiology · Papilledema · Optic Atrophy · Glaucoma	(1)
• Electrophysiology: The Electroretinogram · The Pattern Electroretinogram · The Electro - Oculogram	(1)
• Central nervous pathway: · The Retino-Geniculo-Cortical Pathway · Structure And Function Of The Lateral Geniculate Body · The Primary Visual Cortex · Extrastriate Visual Cortex · Visual Deprivation	(1)
• Binocular vision: · Normal Development Of Binocular Vision · Maldevelopment Of Binocular Vision · Strabismus · Amblyopia	(1)
Total	**(22.5h)**

❖ **Practical & clinical skills:**

1hours/week= 15 hours/semester=0.5 credit hours

3-Teaching and learning methods:

- **Lectures: 1.5credit hours=22.5 taught hours**
- **Practical: 0.5credit hours =15 taught hours**

4-Student Assessment

4.1, exam at the end of semester (quiz, MCQs.....) a1, b1

4.2–log book: a1, b1,c1,d1

5- Assessment schedule:

exam at the end of semester (quiz, MCQs.....)	End of the course

6- List of references

6.1 Course notes

Handout of the department

6.2 Text book:

-American acedamy of ophthalmology. Basic and clinical science course, 2010-2011

6.3 Recommended books

Clinical anatomy of the eye, Richard S. Snell, Micheal A. Lemp, 2nd edition.

6.4 Periodicals and web sites

-British journal of ophthalmology. www.bjo.bmj.com

-Current opinion of ophthalmology. www.co-ophthalmolgy.com

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

-The general library of the faculty.

- Library of the department.

-we certified 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 report 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……..