



الدبلومة المهنية لأمراض وجراحات القرنية و سطح العين



Professional Diploma in Cornea and External Disease

القسم المانح للدرجة: قسم طب وجراحة العيون كلية الطب- جامعة المنصورة

Ophthalmology department- Faculty of Medicine – Mansoura University

نظام الدراسة:

الساعات المعتمدة	الكود	Course	اسم المقرر	
الاجمالي	المقرر			
10	3	Basic Course -Anatomy , Physiology of Cornea and External eye disease. - Clinical Approach to Ocular Surface Disorders -Examination Techniques for the External Eye & Cornea. - Basics of Immunological eye disease. - Diagnosis and Management of Immune-Related Disorders of the External Eye - How to deal and examine, and diagnose Infectious Diseases of the External Eye	المقرر الاساسي (مقرر اساسيات تشخيص وعلاج امراض القرنية و سطح العين)	الفصل الدراسي الاول
	7	Clinical, surgical and self-directed learning	انشطة اكلينيكية وجراحية وتعلم ذاتي	
10	2	Advanced Course - Diagnosis and Management of Neoplastic Disorders of the Conjunctiva & Cornea - How to deal with Systemic Disorders With Corneal Changes. - Diagnosis and Management of Corneal Dystrophies and Ectasias - Diagnosis and Management of Depositions and Degenerations of the Conjunctiva, Cornea, & Sclera - Surgical Treatment of Ocular Surface - Approach to Corneal transplantation	المقرر المتقدم (المقرر المتقدم في تشخيص وعلاج امراض القرنية و سطح العين)	الفصل الدراسي الثاني
	8	Clinical, surgical and self-directed learning	انشطة اكلينيكية وجراحية وتعلم ذاتي	
20				اجمالي الساعات المعتمدة

نظام الامتحان:

الامتحان يتم في نهاية كل فصل دراسي علي النحو الاتي:

المقرر	الدرجة				اجمالي
	تحريري	MCQ	شفهي	كلينيكال	
الفصل الدراسي الاول المقرر الاساسي (مقرر اساسيات تشخيص وعلاج امراض القرنية و سطح العين)	٣٠	٣٠	٢٠	٢٠	١٠٠
الفصل الدراسي الثاني المقرر المتقدم (المقرر المتقدم في تشخيص وعلاج امراض القرنية و سطح العين)	٣٠	٣٠	٢٠	٢٠	١٠٠

الرسوم المفروضة:

- ١- المصريون: ٣٠٠٠٠ (ثلاثون الف جنيه مصري نظير ٢٠ ساعة تدريس معتمدة (٣٠٠٠ جنيه لكل ساعة معتمدة)
- ٢- الأجانب والوافدون : ٦٠٠٠ (ستة الاف دولار نظير ٢٠ ساعة تدريس معتمدة (٣٠٠ دولار لكل ساعة معتمدة)

متطلبات الالتحاق بالدبلومة:

يحق الالتحاق بالدبلومة المهنية لامراض وجراحات القرنية و سطح العين كل من حصل علي دبلومة او ماجستير او دكتوراه او الزمالة العربية او المصرية او ما يكافئها في طب وجراحة العين.

الدبلومة المهنية في امراض وجراحات القرنية و سطح العين

الهدف:

تهدف الدبلومة المهنية لامراض وجراحات القرنية و سطح العين الي امداد المهتمين بهذا الفرع من امراض العيون باعلي درجات المهنية والمهارة في تشخيص وعلاج امراض القرنية و سطح العين في الاطفال والبالغين.

متطلبات الالتحاق بالدبلومة:

يحق لكل من حصل علي ماجستير او دكتوراه او الزمالة العربية او المصرية او ما يكافئها في طب وجراحة العين الالتحاق بالدبلومة المهنية للقرنية و سطح العين.

عدد الساعات المعتمدة: ٢٠ ساعة مقسمة علي فصلين دراسيين

فصل دراسي اول ١٠ ساعات معتمدة

فصل دراسي ثاني ١٠ ساعات معتمدة

الفصل الدراسي الاول: (المستوي الاساسي)

ومدته ٦ اشهر ويشمل دراسة التشريح والفسولوجي والباثولوجي والوراثة الخاص بالقرنية والسطح الخارجي للعين. كذلك التدريب علي اساسيات التعامل الاكلينيكي مع امراض سطح العين. ويشمل ايضا التدريب علي طرق الفحص الاكلينيكية للقرنية و سطح العين الخارجي. ويشمل دراسة تشخيص وعلاج الأمراض المناعية للقرنية و ملتحمة العين. و كذلك يحتوي على كيفية التعامل مع الأمراض المعدية لسطح العين الخارجي (العدوى الفيروسية، العدوى البكتيرية و الطفيلية).

الفصل الدراسي الثاني: (المستوي المتقدم)

ومدته ٦ اشهر ويشمل التدريب على التعامل الاكلينيكي مع اورام القرنية و الملتحمة، و مع تغيرات القرنية مع بعض امراض الجسم. ويشمل أيضا دراسة تشخيص وعلاج امراض القرنية التحديبية والعتامات الوراثية و كيفية التعامل الاكلينيكي مع الترسبات و العتامات الخاصة بالقرنية، الملتحمة و الصلبة. يشمل أيضا كيفية التعامل مع الجوانب الاكلينيكية للاصابات و تأثير السموم على الجزء الامامي للعين و علاج امراض السطح الخارجي للعين. و كذلك يشمل جميع الجوانب المتعلقة بالتعامل الاكلينيكي مع عمليات زراعة القرنية.



COURSE SPECIFICATION

Postgraduate Professional Diploma Degree of Cornea and External Diseases

Faculty of Medicine- Mansoura University

(A) Administrative information

(1) Program offering the course:	Cornea and External Eye Diseases Fellowship
(2) Department offering the program:	Ophthalmology Department
(3) Department responsible for teaching the course:	Cornea and External Diseases Unit
(4) Parts of the program:	2 semesters in 12 months
(5) Date of approval by the Department's council	8/3/2021
(6) Date of last approval of program specification by Faculty council	
(7) Course title:	Cornea and External Diseases
(8) Course code:	CORNEA
(9) Credit hours	20 Credit hours <i>Semester I:</i> 10 hours (3 theoretical & 7 clinical) <i>Semester II:</i> 10 hours (2 theoretical & 8 clinical)
(10) Total teaching hours:	<i>Semester I</i> (10 credit hours= 270 hours) 45 Lectures + 180 clinical + 45 SDL <i>Semester II</i> (10 credit hours= 300 hours) 30 lectures + 135 clinical + 90 operative + 45 SDL
(11) Program Coordinator	Prof. Waleed Ali Abou Samra

2. Entry requirements

Entry to Cornea and External Diseases fellowship requires per minimum the following qualifications: Post-graduate master degree in Ophthalmology or an Egyptian Fellowship of Ophthalmology or Arab Board of Ophthalmology or equivalent degree.

(B) Professional information

(1) Overall aims of course:

The course aims to provide the student with basic knowledge, skill and attitude needed for diagnosis and management of common anterior segment diseases and providing first aid management for common ocular emergencies. In addition to provide the student with the ability to recognize the various tests that are available to aid in the diagnosis of external eye disease. The course aims as well to provide the student with the important skills needed to perform anterior segment surgery and to delineate the risks and benefits for surgical procedures of the anterior segment.

(2) Intended Learning Outcomes (ILOs):

A- Knowledge and Understanding

After finishing the course the candidate will be able to

- A1. Identify fundamentals of anterior segment anatomy, chemistry, physiology microbiology and wound healing with focus on the ocular surface.
- A2. Recognize basic principles of genetics and immunology, including autoimmunity and pathologic responses of the anterior segment.
- A3. Identify principles of anterior segment pharmacology (eg, anti-microbial, anti-inflammatory, ocular hypotensive, anesthetics, visco-protective, immunosuppressive agents, chemotherapeutic, and growth factors).

- A4. Explain disorders of tear production and the lacrimal system, including dry eye disorders both primary and secondary.
- A5. Describe acute and chronic, both infectious and non-infectious.
- A6. Describe acute and chronic infective conjunctivitis.
- A7. Identify non-infective conjunctivitis, including allergic conjunctivitis, giant papillary conjunctivitis, Stevens-Johnson syndrome, toxic conjunctivitis, and conjunctivitis associated with various cutaneous and systemic diseases.
- A8. Distinguish acute and chronic infectious keratitis, including bacterial, viral, fungal, and parasitic.
- A9. Describe noninfectious keratitis, including marginal keratitis, interstitial keratitis, and keratitis associated with collagen vascular diseases.
- A10. Categorize different types of the ocular surface tumors.
- A11. Describe autoimmune and immunologic diseases of the anterior segment.
- A12. Demonstrate the pathophysiology and management of allograft rejection.
- A13. Identify diseases of the sclera, including episcleritis, immune-mediated scleritis, and infective scleritis.
- A14. Recognize fundamentals of preventative, nutritional, and community acquired eye care.
- A15. Explain contact lens physiology, design, and materials, and complications.
- A16. Describe medical and surgical management of corneal thinning and perforation.
- A17. Identify various types of corneal dystrophies and degeneration.
- A18. Identify inclusion of an eye-banking curriculum.
- A19. Recognize different indications and techniques of corneal transplantation, either penetrating or anterior and posterior lamellar.
- A20. Recognize skills in use of reference material and electronic searching.

B- Intellectual skills

The subspecialist will be able to:

- B1. Construct management plan after proper patient history.
- B2. Construct management strategy of common ocular surface diseases using a comprehensive approach.
- B3. Interpret the results of various tests that are available to aid in the diagnosis of external disease, including evaluation of the tear film, use of the microbiology laboratory, and pathology.
- B4. Interpret the results of various ophthalmic Investigations (e.g. ultrasound, specular microscopy, corneal topography/tomography, and anterior-segment optical coherence tomography [OCT])
- B5. Interpret results of corneal topography for diagnosis of keratoconus and for refractive surgery screenings.
- B6. Select the appropriate treatment in the more common and challenging cases of microbial keratitis.
- B7. Differentiate between acute and chronic blepharitis to include both infectious and noninfectious etiologies and select the appropriate treatment.
- B8. Differentiate between different types of conjunctivitis and construct a management plan for each one.
- B9. Correlate developmental anomalies of anterior segment and their impact on visual developments, and management.
- B10. Differentiate between acute and chronic loss of vision due to structural changes of the anterior segment; be able to create a management strategy.

C- Professional/practical skills

The subspecialist will be able to:

- C1. Perform detailed examinations of the anterior segment of the eye and perform evaluations under anesthesia when needed.
- C2. Accomplish different corneal investigations including (eg, endothelial microscopy, computerized corneal topography and tomography, anterior segment ocular coherence tomography).
- C3. Examine patients with acute or chronic redness of the eye.
- C4. Examine patients with acute or chronic loss of vision due to structural changes of the anterior segment.
- C5. Assess the emergency conditions of anterior segment trauma, including chemical, thermal, and mechanical injuries.
- C6. Manage emergency conditions of anterior segment trauma.
- C7. Assist in anterior-segment surgery, including eyelid, conjunctival, scleral, and corneal procedures.
- C8. Perform anterior-segment surgery, including eyelid, conjunctival, scleral, and corneal procedures.
- C9. Participate in penetrating and lamellar keratoplasty.
- C10. Perform penetrating and lamellar keratoplasty.

D- Communication & Transferable skills:

- D1: Communicate effectively with patients, families, and the public.
- D2: Communicate effectively with physicians, other health professionals, and health- related agencies.
- D3: Apply safety measures during practice.
- D4: Apply infection control measures during practice
- D5. Maintain comprehensive, timely and legible medical records.

Intended Learning outcome of each semester:

Semester I:

A- Knowledge and Understanding:

1. Identify the related basic science of the anterior segment structures.
2. Recognize the fundamentals of corneal optics and refraction.
3. Identify the congenital abnormalities of the anterior segment.
4. Describe the fundamentals of ocular microbiology.
5. Describe the basic principles of ocular pharmacology of anti-infective, anti-inflammatory, and immune modulating agents.
6. Recognize the mechanisms of ocular immunology.
7. Describe the symptoms, signs, testing, evaluation and treatment of dry eye.
8. Describe the etiologies and treatment of superficial punctate keratopathy.
9. Recognize different techniques for anterior segment examination.
10. Identify various types of corneal imaging.
11. Explain different methods for anterior segment imaging.
12. Describe the epidemiology, clinical features, pathology, evaluation, and treatment of peripheral corneal thinning disorders or ulceration.
13. Explain the epidemiology, differential diagnosis, evaluation, and management of vitamin A deficiency and neurotrophic corneal diseases.
14. Describe more complex differential diagnosis of red eye.
15. Demonstrate the key features of trachoma, including epidemiology, clinical features, staging, and its complications, prevention, and treatment (Medical and surgical)
16. Describe differential diagnosis, evaluation, and treatment of interstitial keratitis.
17. Describe the differential diagnosis and the external manifestations of more complex anterior segment inflammation (with and without systemic disease).
18. Explain the clinical features, pathology, evaluation, and treatment of ocular cicatricial pemphigoid and Stevens-Johnson syndrome.
19. Recognize presentation and treatment of lid margin diseases.
20. Recognize management of different types of ocular allergy.

B- Intellectual Skills:

1. Construct a management plan for corneal and conjunctival inflammations and infections.
2. Select the proper investigation of dry eye with different tests.
3. Design an approach for diagnosis of acute and chronic conjunctivitis or red eye.
4. Design an approach for management of the external manifestations of anterior segment inflammation.
5. Interpret the results of different strains of the cornea and conjunctiva.
6. Select proper technique for corneal imaging.
7. Interpret results of corneal imaging.
8. Contrast a management plan according to the result of performed investigations.
9. Correlate the concordance of the visual acuity with the density of media opacity and evaluate the etiology of discordance between acuity and findings from examination of the media.
 10. Construct a management strategy for peripheral corneal thinning disorders or ulceration.
 11. Construct a management strategy for more complicated corneal and conjunctival infections.
12. Construct a management strategy for interstitial keratitis.
13. Construct a management strategy for more complex anterior segment inflammation (with and without systemic disease).
14. Construct a management strategy for ocular cicatricial pemphigoid and Stevens-Johnson syndrome.
15. Design an approach for diagnosis and treatment of lid margin diseases.

C- Professional and practical skills:

1. Examine the anterior segment of the eye with slit-lamp biomicroscopy, including drawing of the findings.
2. Administer topical anesthesia, as well as special topical stains of the cornea (eg, fluorescein dye and rose bengal).
4. Perform punctal occlusion (temporary or permanent) or insert plugs.

5. Make simple corneal sensation testing (eg, cotton-tipped swab).
6. Measure the IOP using tonometry (eg, applanation, Tono-Pen, Schiøtz, pneumotonometry).
7. Take a sample in cases of viral, bacterial, fungal, and protozoal ocular infections (eg, corneal scraping and appropriate culture techniques).
8. Manage corneal epithelial defects (eg, pressure patching and bandage contact lenses).
9. Diagnose corneal and conjunctival inflammations and infections.
9. Remove a conjunctival or corneal foreign body (eg, rust ring).
10. Perform an isolated lid laceration repair.
11. Operate simple (non-recurrent) pterygium excision (eg, with autologous conjunctival transplantation).
12. Make epilation.
13. Perform incision, drainage, and/or remove a primary chalazion/stye.
14. Take a simple incisional or excisional biopsy of a lid lesion.
15. Perform irrigation of chemical burn to the eye.
16. Make Seidel test.
17. Perform more advanced techniques, including keratometry, keratoscopy, endothelial cell count and/or evaluation, specular microscopy, and pachymetry
18. Perform stromal micropuncture.

D-Communication and transferable skills

- 1- Demonstrate compassion, integrity, and respect for all human rights and treat all patients equally regardless to their beliefs, culture and behavior.
- 2- Communicate effectively with patients, families, and the public.
- 3- Communicate effectively with physicians, other health professionals, and health- related agencies.
- 4- Maintain comprehensive, timely and legible medical records.

Semester II:

A- Knowledge and Understanding:

1. Describe the classification, pathology, of common eyelid abnormalities and understand their relationship to secondary diseases of the cornea and conjunctiva.
2. Describe the epidemiology, differential diagnosis and management of common benign and malignant lid lesions, including pigmented lesions of the conjunctiva and lid.
3. Explain the effect of more complex mechanisms of traumatic and toxic injury to the anterior segment (eg, long-term sequelae of acid and alkali burn).
4. Identify the anterior segment manifestations of systemic diseases.
5. Identify the anterior segment manifestations of systemic medications.
6. Demonstrate fundamental knowledge of contact lens physiology, design and materials, and complications for both cosmetic and therapeutic use.
7. Explain the principles of anterior segment pharmacology.
8. Describe characteristic corneal and conjunctival degeneration.
9. Recognize the most complex and less common congenital abnormalities of the cornea, sclera, and globe.
10. Demonstrate a detailed understanding of cornea and conjunctival pathology results and interpretation of ocular cultures.
11. Describe less common and rare ocular infections, and describe the differential diagnosis of the most complicated corneal and conjunctival infections.
12. Describe the most complex differential diagnosis of red eye (eg, pemphigoid, pemphigus, Stevens-Johnson syndrome).
13. Describe the differential diagnosis and the external manifestations of the most complex or uncommon anterior segment inflammations (eg, syphilitic keratouveitis).
14. Describe the basic mechanisms of traumatic and toxic injury to the anterior segment and treatment (eg, chemical and thermal burns, lid laceration, orbital fracture).
15. Describe the classic corneal dystrophies (eg, map-dot-fingerprint dystrophy, lattice dystrophy, granular dystrophy, macular dystrophy, Fuchs dystrophy).
16. Recognize common and uncommon corneal and conjunctival neoplasms and degenerations (eg, spheroidal degeneration, carcinoma in situ).

17. Describe the indications for ocular surface transplantation, including conjunctival autograft/flap, amniotic membrane transplantation, and limbal stem cell transplantation.
18. Recognize basic principles, indications and techniques of penetrating keratoplasty.
19. Describe management of postoperative complications of penetrating keratoplasty.
20. Describe basic principles, indications, techniques and complications of anterior lamellar keratoplasty.
21. Recognize basic principles, indications, techniques and complications of posterior lamellar keratoplasty.
22. Recognize and manage autoimmune and immunologic diseases of the anterior segment.
23. Recognize and be familiar with oral and topical immunosuppression and anti-allergy medications.

B- Intellectual Skills:

1. Design an approach for diagnosis and treatment of different types of ocular allergy.
2. Design an approach for diagnosis of common eyelid abnormalities and their relationship to secondary diseases of the cornea and conjunctiva.
3. Construct a management strategy for common benign and malignant lid lesions, including pigmented lesions of the conjunctiva and lid.
4. Design a treatment plan for recurrent corneal erosions.
5. Design a treatment plan for chronic conjunctivitis.
6. Design an approach for diagnosis of the less common corneal dystrophies and degenerations in addition to the more common dystrophies.
7. Design an approach for Evaluation and treatment of acute and chronic blepharitis, including both infectious and noninfectious etiologies.
8. Evaluate and treat acute and chronic conjunctivitis, neonatal conjunctivitis, chlamydial disease, adenoviral conjunctivitis, allergic conjunctivitis, and bacterial conjunctivitis.
9. Design plan of management for acute and chronic infectious keratitis.
10. Design an approach for Evaluation and treatment of noninfectious keratitis including marginal keratitis, central ulcerative keratitis, epitheliopathy, endophthalmitis, and interstitial keratitis.

- 11.Design plan of management for the most complex traumatic and toxic injuries to the anterior segment (eg, total lid avulsion, severe alkali burn).
- 12.Design plan of management for complex corneal lacerations (eg, lacerations extending beyond the limbus, uveal involvement).
- 13.Construct a management plan of corneal ectatic disorders according to the finding of corneal topography and tomography.
- 14.Design an approach for diagnosis and treatment of post-keratoplasty complications.
- 15.Design plan of management for more complex neoplasms of the conjunctiva (eg, carcinoma, melanoma).

C- Professional and practical skills:

1. Perform application of corneal glue
2. Assist in more complex corneal surgery (eg, penetrating keratoplasty and lamellar keratoplasty).
3. Perform more complex and recurrent pterygium excision, including conjunctival grafting.
4. Perform more complex lid laceration repair.
5. Perform more complex corneal laceration repair (eg, stellate perforating laceration).
6. Perform and interpret more complex stains of the cornea and conjunctiva (eg, calcofluor white, acid fast).
7. Treat hyphema and microhyphema with associated increased intraocular pressure and/or blood staining (eg, surgical evacuation).
8. Perform more advanced corneal techniques (eg, endothelial microscopy, computerized corneal topography and tomography, anterior segment ocular coherence tomography).
9. Perform a thin conjunctival flap (eg, Gunderson flap).
- 10.Perform more complex (recurrent) pterygium excision (eg, with autologous conjunctival transplantation).
- 11.Perform specialized and complicated fitting of contact lenses (eg, post-keratoplasty, advanced keratoconus).
- 12.Perform more complex corneal surgery (eg, penetrating or lamellar keratoplasty, keratorefractive procedures, and phototherapeutic keratectomy), and understand the postoperative management including post-keratoplasty astigmatism management and including recognition and management of graft rejection.

13. Perform other complex conjunctival surgery (eg, autograft, stem cell transplant).
14. Participate in more complex surgeries, including extensive conjunctival reconstruction, amniotic membrane transplantation, ocular surface neoplasia, and limbal stem cell transplantation.
15. Use mitomycin (and/or other chemotherapeutic agents) in corneal and conjunctival surgeries and recognize the appropriate application and potential side effects.
16. Perform an isolated corneal laceration repair (eg, linear laceration not extending to limbus, not involving uveal or intraocular structures).
17. Perform lateral tarsorrhaphy.

D-Communication and transferable skills

- 1- Demonstrate compassion, integrity, and respect for all human rights and treat all patients equally regardless to their beliefs, culture, and behavior.
- 2- Communicate effectively with patients, families, and the public.
- 3- Communicate effectively with physicians, other health professionals, and health- related agencies.
- 4- Maintain comprehensive, timely and legible medical records.

(3) Course contents:

Semester I:

- ✓ Basics of cornea and external diseases (anatomy, physiology, pathology, and immunology)
- ✓ 10 Credit Hours (45 Lectures + 180 Clinical + 45 SDL = 270 Total Teaching hours)

Semester II:

- ✓ Diagnosis of cornea and external diseases.
- ✓ Medical and Surgical Treatment of cornea and external diseases
- ✓ 10 Credit Hours (30 Lectures + 135 Clinical + 90 Operative + 45 SDL) = 300 Total Teaching hours)

Semester I: Basics of cornea and external diseases				
10 Credit Hours				
<i>Topic</i>	<i>Lectures</i>	<i>Clinical</i>	<i>Seminar</i>	<i>Total hours</i>
I) <u>Structure of the External Eye and Cornea</u> <u>هيكل العين الخارجي والقرنية</u> 1) Anatomy of Eyelids / Anatomy of Lacrimal System and Tear Film 2) Anatomy of Conjunctiva / Anatomy of Cornea and Sclera	3	5	-	8
II) <u>Congenital Anomalies of the Cornea, Sclera, & Globe</u> <u>العيوب الخلقية للقرنية، الصلبة وكرة العين</u> 1) Congenital anomalies of globe (Cryptophthalmos, Microphthalmos, Nanophthalmos, and Blue Sclera) 2) Congenital Corneal Opacities in Hereditary Syndromes and Chromosomal Aberrations 3) Intrauterine Keratitis: Bacterial and Syphilitic 4) Congenital Glaucoma / Birth Trauma / Arcus Juveniles.	3	5	-	8
III) <u>Ocular Immunology</u> <u>مناعة العين</u> 1) Overview of the Ocular Surface Immune Response 2) Immunoregulation of the Ocular Surface Angiogenesis and Lymphangiogenesis in the Cornea 3) Diagnostic Approach to Immune-Mediated Ocular Disorders in Conjunctiva, Cornea and Sclera.	4	10	10	24
IV) <u>Clinical Approach to Ocular Surface Disorders</u> <u>التعامل الاكلينيكي مع امراض سطح العين</u> 1) Common Clinical Findings Conjunctival Signs Corneal Signs. 2) Clinical Approach to Dry Eye (Mechanisms of Dry Eye, Aqueous Tear Deficiency Evaporative Dry Eye and Treatment). 3) Eyelid Diseases Associated With Ocular Surface	10	40	10	60

Disorders: a. Rosacea. b. Seborrhic and Staphylococcal Blepharitis. c. Hordeola and Chalazia. 4) Exogenous Disorders Associated with Ocular Surface Disorders: a. Exposure Keratopathy b. Floppy Eyelid Syndrome c. Superior Limbic Keratoconjunctivitis d. Recurrent Corneal Erosion e. Neurotrophic Keratopathy. f. Persistent Corneal Epithelial Defects g. Trichiasis and Distichiasis h. Factitious Ocular Surface Disorders Dellen 5) Limbal Stem Cell Deficiency 6) Systemic Conditions Associated with Ocular Surface Disorders: a. Sjögren Syndrome b. Vitamin A Deficiency c. Ocular Cicatrizing conjunctivitis. d. Ichthyosis e. Ectodermal Dysplasia f. Xeroderma Pigmentosum g. Vitamin A Deficiency				
<u>V) Examination Techniques for the External Eye & Cornea</u> <u>طرق الفحص الاكلينيكية للقرنية و سطح العين الخارجى</u> 1) Evaluation of Vision in the Patient with an Abnormal Cornea. 2) External Examination 3) Slit-Lamp Biomicroscopy; Direct and Indirect Illumination Methods. 4) Clinical Use of various Stains (Fluorescein, Rose Bengal and Lissamine Green). 5) Evaluation of the Tear Film and Tear Production. 6) Imaging Technologies of cornea: a. Corneal Pachymetry b. Measurement of Corneal Curvature c. Shape, Curvature, and Power Keratometry d. Computerized Corneal Topography Corneal Tomography 7) Additional Imaging Techniques of the Cornea and Anterior Segment a. Ultrasound Biomicroscopy b. Anterior Segment Optical Coherence Tomography. c. Specular Microscopy. d. Slit-Lamp Photography e. Confocal microscopy. f. Anterior Segment Fluorescein Angiography. g. Esthesiometry h. Retinoscopy	10	40	10	60

<p><u>VI) Diagnosis and Management of Immune-Related Disorders of the External Eye</u> <u>تشخيص وعلاج الأمراض المناعية للقرنية و سطح العين الخارجي</u></p> <ol style="list-style-type: none"> 1) Immune-Mediated Diseases of the Eyelid: Contact & Atopic Dermatitis. 2) Immune-Mediated Disorders of the Conjunctiva: <ol style="list-style-type: none"> a. Hay Fever Conjunctivitis and Perennial Allergic Conjunctivitis Vernal Keratoconjunctivitis. b. Atopic Keratoconjunctivitis. c. Ligneous Conjunctivitis. d. Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis. e. Mucous Membrane Pemphigoid f. Ocular Graft-vs-Host Disease 3) Immune-Mediated Diseases of the Cornea: <ol style="list-style-type: none"> a. Thygeson Superficial Punctate Keratitis b. Interstitial Keratitis Associated with Infectious Diseases. c. Reactive Arthritis d. Cogan Syndrome e. Marginal Corneal Infiltrates Associated with Blepharoconjunctivitis f. Peripheral Ulcerative Keratitis Associated with Systemic Immune-Mediated Diseases; Mooren Ulcer g. Corneal Transplant . 4) Immune-Mediated Diseases of the Episclera and Sclera: Episcleritis & Scleritis 	5	30	5	40
<p><u>VII) Infectious Diseases of the External Eye:</u> <u>الأمراض المعدية لسطح العين الخارجي</u> <u>(A) Basic Concepts & Viral Infections</u> <u>المفاهيم الأساسية، و العدوى الفيروسية</u></p> <ol style="list-style-type: none"> 1) Defense Mechanisms of the External Eye Normal Ocular Flora 2) Pathogenesis of Ocular Infections Virulence 3) Ocular Microbiology <ol style="list-style-type: none"> a. Diagnostic Laboratory Techniques b. Specimen Collection c. Staining Methods 4) Virology and Viral Infections: <ol style="list-style-type: none"> a. Herpesviruses (Herpes Simplex Eye Diseases). b. Varicella-Zoster Virus (Dermatoblepharitis, Conjunctivitis, and Keratitis). c. Epstein-Barr Virus (Dacryoadenitis, Conjunctivitis, and Keratitis). d. Cytomegalovirus (Keratitis and Anterior Uveitis). e. Adenoviruses (Poxviruses & Molluscum Contagiosum) <p>Papovaviruses</p> <p><u>(B) Microbial & Parasitic Infections</u> <u>العدوى البكتيرية و الطفيلية</u></p> <ol style="list-style-type: none"> 1) Bacteriology 	10	50	10	70

Gram-positive Cocci, Gram-negative Cocci, Gram-positive Rods, Gram-negative Rods, Gram-positive Filaments, Chlamydia, Spirochetes. 2) Mycology Yeasts, Septate Filamentous Fungi, Nonseptate Filamentous Fungi 3) Parasitology Protozoa, Helminths, Arthropods. 4) Microbial and Parasitic Infections of the Eyelid Margin and Conjunctiva; Staphylococcal Blepharitis 5) Fungal and Parasitic Infections of the Eyelid Margin. 6) Bacterial Conjunctivitis in Children and Adults; Parinaud Oculoglandular Syndrome 7) Microbial and Parasitic Infections of the Cornea and Sclera: a. Contact Lens-Related Infectious Keratitis b. Bacterial Keratitis. c. Atypical Mycobacteria. d. Fungal Keratitis. e. Acanthamoeba Keratitis f. Corneal Stromal Inflammation Associated with Systemic Infections; Microsporidiosis, Loiasis Microbial Scleritis				
<u>Total Teaching Hours</u>	45	180	45	270
<u>Credit Hours</u>	3	4	3	10

Semester II: Diagnosis of cornea and external + Medical and Surgical Treatment of cornea and external diseases
10 Credit Hours

Topic	Lectures	Clinical	Operative	SDL	Total hours
<u>I) Clinical Approach to Neoplastic Disorders of the Conjunctiva & Cornea</u> <u>التعامل الاكلينيكي مع اورام القرنية و الملتحمة</u> 1) Approach to the Patient with a Neoplastic Conjunctival Lesion 2) Management of Patients with Conjunctival Tumors: Surgical Treatment & Topical Chemotherapy 3) Tumors of Epithelial Origin: Benign, Pre-invasive & Malignant Epithelial Lesions 4) Management of Atypical Epithelial Tumors & Other Malignant Epithelial Lesions 5) Glandular Tumors of the Conjunctiva: Oncocytoma, Sebaceous Gland Carcinoma. 6) Tumors of Neuro-ectodermal Origin 7) Benign Pigmented Lesions, Pre-invasive & Malignant Pigmented Lesions 8) Neurogenic and Smooth-Muscle Tumors 9) Vascular and Mesenchymal Tumors: Benign & Malignant Tumors 10) Lymphatic and Lymphocytic Tumors: Lymphangiectasia, Lymphangioma, Lymphoid Hyperplasia & Lymphoma Metastatic Tumors.	5	10	-	5	20
<u>II) Corneal Dystrophies and Ectasias</u> <u>امراض القرنية التحديبية والعتامات الوراثية</u> 1) Corneal Dystrophies a. Epithelial and Sub-epithelial Dystrophies b. Bowman Layer Corneal Dystrophies c. Stromal Corneal Dystrophies. d. Endothelial Dystrophies 2) Ectatic Disorders a. Keratoconus b. Pellucid Marginal Degeneration c. Keratoglobus	4	20	-	4	28
<u>III) Systemic Disorders With Corneal Changes</u> <u>تغيرات القرنية مع بعض امراض الجسم</u> 1) Disorders of Carbohydrate Metabolism: Mucopolysaccharidoses & Diabetes Mellitus 2) Disorders of Lipid Metabolism and Storage: Hyperlipoproteinemias Hypolipoproteinemias, Sphingolipidoses & Mucolipidoses 3) Disorders of Amino Acid Metabolism: Cystinosis, Tyrosinemia & Alkaptonuria 4) Disorders of Protein Metabolism: Amyloidosis	3	20	-	3	26

5) Disorders of Immunoglobulin Synthesis. 6) Non-inflammatory Disorders of Connective Tissue: Ehlers-Danlos Syndrome & Marfan Syndrome 7) Disorders of Nucleotide Metabolism: Gout, Porphyria 8) Disorders of Mineral Metabolism: Wilson Disease, Hypercalcemia & Hemochromatosis. 9) Corneal and External Disease Signs of Systemic Neoplasia. 10) Enlarged Corneal Nerves					
<u>IV) Clinical Approach to Depositions and Degenerations of the Conjunctiva, Cornea, & Sclera</u> <u>التعامل الاكلينيكي مع الترسبات و العتامات الخاصة بالقرنية، الملتحمة و الصلبة</u> 1) Degenerative Changes of the Conjunctiva a. Age-Related (Involutional) Changes b. Pinguecula c. Pterygium d. Conjunctival Concretions / Inclusion Cysts. e. Conjunctivochalasis f. Conjunctival Vascular Tortuosity & Hyperemia 2) Degenerative Changes in the Cornea a. Age-Related (Involutional) Changes b. Epithelial and Sub-epithelial Degeneration c. Stromal Degenerations d. Endothelial Degenerations 3) Scleral Degenerations 4) Drug-Induced Deposition and Pigmentation: a. Corneal Epithelial Deposits b. Stromal and Descemet Membrane Pigmentation Endothelial Manifestations	3	10	-	3	16
<u>V) Clinical Aspects of Toxic and Traumatic Injuries of the Anterior Segment</u> <u>الجوانب الاكلينيكية للاصابات و تأثير السموم على الجزء الامامي للعين</u> 1) Physical Injuries: a. Radiation burn. b. Thermal Burns c. Ultraviolet & Ionizing Radiation. 2) Chemical Injuries: a. Alkali Burns. b. Acid Burns 3) Toxic Keratoconjunctivitis from Medications. 4) Traumatic iris injuries: a. Mydriasis and Mitosis. b. Traumatic Iritis c. Iridodialysis and Cyclodialysis. d. Traumatic Hyphema 5) Nonpenetrating Mechanical Trauma:	5	25	30	10	70

a. Conjunctival Laceration / Foreign Body. b. Corneal Foreign Body / Abrasion. 6) Perforating Trauma; Evaluation & Management 7) Surgical Trauma a. Corneal Epithelial Changes from Intraocular Surgery b. Descemet Membrane & Endothelial Changes During Intraocular Surgery Conjunctival and Corneal Changes from Extraocular Surgery					
<u>VI) Treatment of Ocular Surface Disorders</u> <u>علاج امراض السطح الخارجى للعين</u> 1) Surgical Limbal Transplantation 2) Autologous Conjunctival Transplantation 3) Pterygium Excision; Mucous Membrane Grafting & Conjunctival Flap. 4) Conjunctivochalasis Excision 5) Therapeutic Interventions for Corneal Disease: a. Superficial Keratectomy. b. Corneal Biopsy c. Management of Descemetocoele, Corneal Perforation d. Corneal Tattoo Tarsorrhaphy	5	25	30	10	70
<u>VII) Clinical Approach to Corneal Transplantation</u> <u>التعامل الاكلينيكي مع عمليات زراعة القرنية</u> 1) Eye Banking and Donor Selection: Criteria, Contraindicating & Donor Cornea Use 2) Surgical Approach to Corneal Transplantation 3) Preoperative Evaluation and Preparation 4) Penetrating Keratoplasty: a. Surgical Technique for PK & Combined Procedures, Intraoperative Complications, Postoperative Care and Complications. b. Control of Postoperative Corneal Astigmatism and Refractive Error. c. Diagnosis and Management of Graft Rejection 5) Pediatric Corneal Transplantation. 6) Corneal Autograft Procedures 7) Keratoprosthesis 8) Lamellar Keratoplasty a. Anterior Lamellar Keratoplasty: Surgical Technique, Postoperative Care and Complications. b. xEndothelial Keratoplasty, DSEK & DMEK.	5	25	30	10	70
<u>Total Teaching Hours</u>	30	135	90	45	300
<u>Credit Hours</u>	2	3	2	3	10

At the end of the Program the candidates should be demonstrates the following Professional (Clinical, practical and surgicl) skills.

I) Clinical Skills:

1. Slit-lamp using different types of illumination
2. Clinical Use of various Stains (Fluorescein, Rose Bengal and Lissamine Green).
3. Tear film evaluation (Staining + TBUT).
4. Detailed corneal examination in different situations (e.g, Infectious keratitis, corneal exposure, corneal trauma, corneal dystrophy, corneal ectasia).
5. Examination of lids (
6. Examination of lacrimal System (Puncti, Nasolacrimal duct)

II) Investigations:

1. Imaging Technologies of cornea:

- a) Corneal Pachymetry
- b) Measurement of Corneal Curvature
- c) Shape, Curvature, and Power Keratometry
- d) Computerized Corneal Topography Corneal Tomography

2. Additional Imaging Techniques of the Cornea and Anterior Segment:

- a) Ultrasound Biomicroscopy
- b) Anterior Segment Optical Coherence Tomography.
- c) Specular Microscopy.
- d) Slit-Lamp Photography
- e) Confocal microscopy.
- f) Anterior Segment Fluorescein Angiography.
- g) Esthesiometry
- h) Retinoscopy

III) Surgical Skills:

1. Ptygium excision with different types og grafts.
2. Amniotic membrane graft.
3. Conjunctiva graft.
4. Corneal Biopsy
5. Management of Descemetocoele, Corneal Perforation
6. Tarsorrhaphy
7. Repair of rupture globe.
8. Penetrating keratoplasty.
9. Lamellar keratoplasty.

4. Program ILOs Matrix:

Topic	Semester 1	Semester 2
A 1	√	
A 2	√	√
A 3	√	√
A 4	√	
A 5	√	
A 6	√	
A7	√	

A 8	√	
A 9	√	
A 10		√
A 11	√	√
A 12		√
A 13		√
A 14		√
A 15		√
A 16		√
A 17		√
A18		√
A 19		√
A 20	√	√
B 1	√	
B 2	√	
B 3	√	
B 4		√
B 5		√
B 6		√
B 7		√
B 8	√	√
B 9	√	√
B10	√	√
C 1	√	
C 2	√	√
C 3		√
C 4	√	√
C 5		√
C 6		√
C 7	√	√
C 8		√
C 9		√
C10		√
D 1	√	√
D 2	√	√
D 3	√	√
D 4	√	√
D 5	√	√

5. Program Regulation

During the entire training program, the candidate must be dedicated and fully responsible for patient care under supervision of fellowship trainers.

Trainees Duties and obligations

4.1- The trainees should attend and participate. Attendance and participation should not be less than 75% of the total number of activities within any training rotation / period including:

4.1.1. Cornea clinics

4.1.2. Anterior segment Investigations Units

4.1.3. Operations Wards (Minor and Major)

4.1.4. Clinical round presentation, at least once weekly to cover various topics, problems or research.

4.1.5. Journal club meeting.

4.1.6. Departmental meetings/ morbidity and mortality meetings.

4.1.7. Grand staff rounds.

4.2. Trainees should be actively involved and fully responsible for patient care including sharing in making decisions about diagnosis and management under supervision of the consultants.

4.3. Trainees should be responsible (under supervision) for outpatient routine work.

4.4. Trainees must take supervised shifts according to the hospitals requirements and regulations.

4.5. Trainees should be responsible for supervised admission of the patients from the OPD or the ER.

4.6. Trainees should share in the completion of the following documents under supervision.

4.6.1- Complete history and physical examination form.

4.6.2- Investigation requests, (laboratory, radiology, pathology, etc.).

4.6.3- Reporting results of the investigations

4.6.4- The plan of management after consultation and approval from supervisors

4.6.5- Discussion of the case with the trainer and consultants

4.6.6. Sick leaves and medical reports

6. Teaching methods:

5.1. Lectures.

5.2: Clinical training

5.3: Case discussion.

5.4: Clinical seminar

5.5: E- learning

5.6: Self learning

5.7: Wet Lab

7. Assessment methods:

- 6.1: Written exam for assessment of knowledge, intellectual skills
- 6.2: Structural Oral exam for assessment of knowledge, intellectual skills
- 6.3: Clinical exam (OSCE) for assessment of knowledge, intellectual, practical and communication skills.....etc)
- 6.4: MCQ exam continuous assessment

نظام و قواعد الامتحان وتوزيع الدرجات

١. سيتم عقد امتحان في نهاية كل من الفصل الدراسي الاول والثاني.
٢. كي يعتبر الطالب ناجحاً في الفصل الدراسي ومنقول للفصل التالي؛ لابد من تحقيق ما يعادل او يتجاوز نسبة ٦٠% من الامتحان التحريري و الاختيار من متعدد مجتمعين ، ونسبة تعادل او تتجاوز ٦٠% من الامتحان العملي والشفوي مجتمعين.
٣. في حالة عدم تحقيق الطالب نسبة النجاح المطلوبة في الفصل الدراسي، يتم نقله للفصل الدراسي التالي مع اعادة التقييم في الفصل الدراسي التالي.

➤ الامتحان الفصلية

اجمالي	الدرجة				المقرر
	كلينيكال	شفهي	MCQ	تحريري	
١٠٠	٢٠	٢٠	٣٠	٣٠	الفصل الدراسي الاول المقرر الاساسي (مقرر اساسيات تشخيص وعلاج امراض القرنية و سطح العين)
١٠٠	٢٠	٢٠	٣٠	٣٠	الفصل الدراسي الثاني المقرر المتقدم (المقرر المتقدم في تشخيص وعلاج امراض القرنية و سطح العين)

8. References of the course:

1. Basic and Clinical Science Course. Section 8: External Disease and Cornea. San Francisco: American Academy of Ophthalmology, 2010.
2. Krachmer JH, Mannis MJ, Holland EJ. Cornea: Fundamentals, Diagnosis, and Management 3 ed. Mosby Elsevier, 2011.
3. Yanoff N, Duker JS. Ophthalmology 3 ed. Mosby Elsevier, 2009 (Chapter 4).
4. Friedman NJ, Kaiser PK, Trattler WB. Review of Ophthalmology. Elsevier Saunders 2005, Philadelphia. Pp 197-234.
5. Vajpayee RB. Corneal Transplantation 2nd edition. Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
6. Coster D. Cornea (Fundamentals of Clinical Ophthalmology Series). Blackwell Publishing Limited.

Recommended Websites

1. American Academy of Ophthalmology EyeWiki Cornea/External Disease
http://eyewiki.aao.org/Category:Cornea/External_Disease
2. University of Arizona Hereditary Ocular Disease
<http://disorders.eyes.arizona.edu/>
3. University of Iowa Hospital and Clinics Eye Rounds
<http://webeye.ophth.uiowa.edu/eyeforum/atlas/indexes/Cornea.html>
4. University of Iowa Hospital and Clinics Eye Rounds – Case Presentations
<http://webeye.ophth.uiowa.edu/eyeforum/cases.htm> (Cornea and Anterior Segment tab)
5. Columbia Digital Reference of Ophthalmology Cornea and External Disease
<http://dro.hs.columbia.edu/ced1.htm>
6. Online Journal of Ophthalmology Atlas of Ophthalmology - Cornea
<http://www.atlasophthalmology.com/atlas/folder.jsf?node=922&locale=en>

Periodicals:

- Cornea Journal
- Journal of Cataract and Refractive Surgery
- The Journal of Cornea and External Disease
- American Journal Of Ophthalmology
- British Journal Of ophthalmology
- Ophthalmology

9. Facilities and resources mandatory for course completion:

8.1- Lecture Halls.

8.2- Data show.

8.3- Cornea clinics.

8.4- Investigative ophthalmology rooms equipped with specular microscopy, Pentacam, OCT, US, Pachymetry.....

8.6- Operating room

8.7- Library

8.8. Wet Lab

8.8- Facilities for tutors:

- * Computers and high-speed internet connection.

- * International databases.

External Reference:

International Council Of Ophthalmology (ICO) Subspecialty Curricula Development Project