



# **College of Physicians and Surgeons of Mumbai**

## **Syllabus for CPS-PG-Course**

### **DOMS - DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY**

**College of Physicians and Surgeons of Mumbai**

CPS House, Dr. E. Borges Marg, Parel, Mumbai – 400012.

**DOMS-DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY**

**COURSE DESCRIPTION**

**Eligibility :** A candidate should possess MBBS degree/ equivalent degree as per provisions of Indian Medical Council Act.

**Duration :** 2 Years

**At the end of the course students should have adequate knowledge in following areas or should have acquired following skills**

**A. Cognitive domain**

Students should have knowledge about

1. Anatomy and physiology of eye and its parts
2. Physiology of vision
3. Anatomy and physiology of visual pathway
4. Anatomy of related skeletal structures, bones and CNS
5. Nutritional factors in vision
6. Common and uncommon ophthalmic pathologies
7. Ethical issues
8. Medico-legal issues
9. Eye bank and eye donation
10. Preventive ophthalmology
11. Diagnosis of a case by scientific and rational approach
12. Management and treatment of all kind of ophthalmic conditions
13. Surgical procedures in ophthalmology
14. Management of ophthalmic emergencies
15. All drugs used in ophthalmology, their pharmacokinetics and their interaction with other drugs
16. Systemic conditions affecting eyes
17. Preventing ophthalmic complications in general diseases.
18. Refraction, refractive errors and its assessment
19. Prescription of glasses
20. Fitting of glasses; Types of glasses
21. Judging the accuracy of glasses
22. Various laboratory investigations and their interpretations
23. Working in community
24. National health programmes related to ophthalmology

B. Affective domain

1. Should develop communication skills to interact effectively with patients, relatives and colleagues and other hospital staff.
2. Should always adopt ethical principles and practices
3. Should be able to work a member of a team for effective care delivery system
4. Should develop an attitude to contribute effectively in the improvement, maintenance of health care delivery system of the country and to contribute in improving the health indicators of our country in comparison with the other developed world.

Psychomotor domain

At the end of the course, students should be able to do following

1. Examination techniques along with interpretation
2. Slit lamp Examination
3. Fundus evaluation (direct and indirect ophthalmoscopy)
4. Basic investigation along with their interpretation
5. Tonometry
6. Tear/ Lacrimal function tests
7. Corneal
8. Colour Vision Evaluation
9. Refraction
10. Diagnosis & Assessment of squint
11. Contact Lens
12. Low Vision Aids.
13. Community Ophthalmology
14. Interpretation of Investigative modalities
15. Fundus Photography
16. Fluorescence in angiography
17. Ophthalmic ultrasound
18. Automated perimetry for glaucoma and neurological lesions
19. Radiological tests
20. Minor surgical procedures.
21. Conjunctival and corneal foreign body removal on the slit lamp
22. Chalazion incision and curettage
23. Pterygium excision
24. Biopsy of small lid and tumours
25. Suture removal- skin / conjunctival/ corneal / corneoscleral
26. Tarsorrhaphy
27. Subconjunctival injection
28. Retrobulbar, Peri-bulbar anaesthesia
29. Posterior Sub-Tenon's injections
30. Artificial eye fitting
31. Surgical Procedures.
32. Ocular Anaesthesia
33. Lid Surgery –

- a. Tarsorrhaphy
  - b. Ectropion
  - c. Entropion
  - d. Ptosis
  - e. Trichiasis
  - f. Dystichiasis, etc.
34. Evisceration / Enucleation
  35. Sac surgery – Probing, DCT, DCR
  36. Strabismus surgery
  37. Orbit surgery
  38. Cyclocryotherapy
  39. Use of operating microscope.
  40. Cataract surgery
  41. Anterior Vitrectomy
  42. Ocular Surface procedures
  43. Corneal refractive procedures.
  44. Microscopic surgeries.
  45. Keratoplasty
  46. Glaucoma surgery
  47. Research Skills
  48. Basic statistical knowledge
  49. Ability to undertake clinical & basic research
  50. Descriptive and inferential statistics ability to publish results of one's work
  51. Recent advances in Ophthalmology

## **SYLLABUS**

### **Basic Sciences related to Ophthalmology**

- I. Orbital and Ocular Anatomy:
  - Gross Anatomy,
  - Histology,
  - Embryology
- II. Ocular Physiology
- III. Ocular Pathology: Gross pathology, Histopathology, General Pathology
- IV. Biochemistry
  - General Biochemistry,
  - Biochemistry applicable to ocular function.
- v. Microbiology
  - General Microbiology,

- Specific Microbiology applicable to eyes
- VI. Immunology with particular reference to ocular immunology.
- VII. Optics
  - Basic physics of optics
  - Applied Ophthalmic optics
  - Applied optics including optical devices
  - Disorders of Refraction
- VIII. Environment & Health
  - Epidemiological concepts and techniques,
  - Investigation of an epidemic.
  - Epidemiological indicators and methodology for investigation
  - Non Communicable ocular diseases and Nutritional disorders.
  - Industrial Ophthalmology.
  - Communicable ocular condition.
  - Survey Designs, Health Information
  - Graphical representation of data and its interpretation.
  - Principles and practice of eye health education.
  - Existing eye health infrastructure and the National programme for control of blindness.
  - Eye Camp approach for management of ocular morbidity
  - Role of other National programmes for decreasing ocular morbidity and programmes for visual rehabilitation.
  - Eye Health Planning and Management.
  - Financial & human resource development for ocular health care.
  - Formulation, implementation and evaluation of community directed programme.

**Clinical Ophthalmology:**

- I. **Disorders of the lids.**
  - Anatomy & basic requirements, instruments.

- Lid Pathology +Management.
- II. **Disorders of the Lacrimal System.**
  - Anatomy of drainage system & investigative procedures.
  - DCR
  - CDCR & other intubation techniques.
  - Congenital NLD Block + Management.
- III. **Disorders of the Conjunctiva & Disorders of the Cornea.**
  - Donor Corneal Tissue
  - Penetrating Keratoplasty -Surgical Techniques
  - Corneal Graft Rejection
  - Conjunctivitis
  - Tear Film-Abnormalities and Management
  - Dry Eye & Keratomalacia
  - Trachoma
  - Incision Surgery -
  - Non Incisional, Non Laser Refractive Surgery
  - Laser Refractive Surgery
  - Bacterial Keratitis
  - Viral Keratitis.
  - Fungal Keratitis
  - Non-infective corneal ulcers/corneal Degenerations
  - Corneal Dystrophies
  - Ectatic Corneal Dystrophies
- IV. **Disorders of the Sclera.**
- V. **Disorders of the Uveal Tract (C. UVEA)**
  - Anterior Uveitis
  - Posterior Uveitis
  - Basic Principles of Investigations of uveitis
  - Anatomy of uveal tract
  - Elements of the immune systems
  - Concepts of disease pathogenesis.
  - Specific infective Uveitic entities
  - Specific uveitis entities

- Principles of Management of Uveitis
- Complications
- Sympathetic ophthalmitis

**VI. Disorders of the Lens.**

- ECCE Surgery
- Small Incision cataract surgery
- Basics of Phacoemulsification
- Steps of Phacoemulsification
- Nucleus and cortical management in Phacoemulsification lens disorders with metabolic disease and congenital syndrome.
- Complications of Phacoemulsification.
- Phacoemulsification in difficult situation
- Congenital Cataract
- Anatomy & Embryology
- Physiology
- Pathogenesis of age related cataract.
- Acquired Cataract
- IOLS
- Secondary IOL Implantation
- The Capsule in Cataract Surgery
- Subluxation/ Dislocation of Lens
- Femtosecond Laser in Cataract Surgery.

**VII. Disorders of the Retina.**

- Basics of Vitreo Retina
- Retinal detachment and Management.
- Diabetic Retinopathy.
- Endophthalmitis.
- Vitreous Substitutes.
- Lasers & posterior segment diseases. Laser in Post. Segments
- Retinopathy in Vascular Disease Macular Disease and Management.

**VIII. Ocular Tumors + Management.**

**IX. Disorders of the Orbit.**

- socket and its problems
- Orbital diseases
- Orbital Surgery
- Enucleation / Eviseration/ exenteration

**X. Glaucoma.**

- Diagnosis of glaucoma
- Primary Angle closure glaucoma
- Primary open angle glaucoma
- Congenital glaucoma
- Lasers in glaucoma
- Medical management of glaucoma
- Surgical management of glaucoma
- Secondary Glaucoma

**XI. Neuro ophthalmology/Disorders of Optic nerve and Visual pathway.**

- Papilloedema
- Optic neuritis
- Space occupying lesions of sellar region
- Myopathies & disorders of neuromuscular transmission
- Defects of ocular motility
- Nystagmus
- Intracranial aneurysms

**XII. Paediatric Ophthalmology.**

- Basic concepts of genetics, heredity & congenital malformations
- Eye in infancy
- Genetically determined metabolic disorders in children
- Leucocoria
- Management of epiphora

**Essential Diagnostic Skills:**

**I. Examination techniques along with their interpretation**

- Slit lamp Examination



- Fundus evaluation

**II. Basicle investigation along with their interpretation**

- Tonometry
- Tear/ Lacrimal function tests
- Corneal
- Colour Vision Evaluation
- Refraction
- Diagnosis & Assessment of squint
- Exophthalmometry
- Contact Lens
- Low Vision Aids.
- Community Ophthalmology

**III. Interpretation of Investigativemodalities**

- Fundus Photography
- Fluorescence in angiography
- Ophthalmic ultrasound
- Automated perimetry for glaucoma and neurological lesions
- Radiological tests

**IV. Minor surgicalprocedures.**

- Conjunctival and corneal foreign body removal on the slit lamp
- Chalazion incision and curettage
- Pterygium excision
- Biopsy of small lid and tumours
- Suture removal- skin / conjunctival/ corneal / corneoscleral
- Tarsorrhaphy
- Subconjunctival injection
- Retrobulbar, Peri-bulbar anaesthesia
- Posterior Sub-Tenon's injections
- Artificial eye fitting

**V. SurgicalProcedures.**

- Ocular Anaesthesia
- Lid Surgery – Tarsorrhaphy

- Destructive procedures
- Sac surgery
- Strabismus surgery
- Orbit surgery
- Cyclocryotherapy
- Use of operating microscope.
- Cataract surgery
- Vitrectomy
- Surface ocular procedures
- Corneal refractive procedures.
- Microscopic surgeries.
- Keratoplasty
- Glaucoma surgery

**VI. ResearchSkills**

- Basic statistical knowledge
- Ability to undertake clinical & basic research
- Descriptive and inferential statistics ability to publish results of one's work
- Knowledge of computers is helpful

**VII. Recent advances in Ophthalmology**

**VIII. Medico Legal aspects of Ophthalmology**

**DOMS-DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY****EXAMINATION PATTERN****Theory Examination:**

<b>PAPER I</b>	<b>PAPER II</b>	<b>PAPER III</b>
<b>Section I</b>	<b>Section I</b>	<b>Section I</b>
BASIC SCIENCES CONCERNING THE EYES AND OPTICS	OPHTHALMIC MEDICINE AND SURGERY INCLUDING THE RECENT ADVANCE	GENERAL MEDICINE AND ITS RELATION TO OPHTHALMOLOGY AND RECENT ADVANCES IN OPHTHALMOLOGY
Q.1. 10 Marks Q.2. 10 Marks Q.3. 10 Marks Q.4. 10 Marks Q.5. 10 Marks <b>Total 50 Marks</b>	Q.1. 10 Marks Q.2. 10 Marks Q.3. 10 Marks Q.4. 10 Marks Q.5. 10 Marks <b>Total 50 Marks</b>	Q.1. 10 Marks Q.2. 10 Marks Q.3. 10 Marks Q.4. 10 Marks Q.5. 10 Marks <b>Total 50 Marks</b>
<b>Section II</b>	<b>Section II</b>	<b>Section II</b>
Q.6. 10 Marks Q.7. 10 Marks Q.8. 10 Marks Q.9. 10 Marks Q.10. 10 Marks <b>Total 50 Marks</b>	Q.6. 10 Marks Q.7. 10 Marks Q.8. 10 Marks Q.9. 10 Marks Q.10. 10 Marks <b>Total 50 Marks</b>	Q.6. 10 Marks Q.7. 10 Marks Q.8. 10 Marks Q.9. 10 Marks Q.10. 10 Marks <b>Total 50 Marks</b>
Section I + II = 100 Marks	Section I + II = 100 Marks	Section I + II = 100 Marks
<b>Total Theory = 300 Marks, Passing = 150 (i.e. 50%) Marks in aggregate</b>		

<b>Practical Examination:</b>		<b>Marks</b>
<b>Paper - V</b>	Clinical Long Cases	40
<b>Paper - VI</b>	Clinical Short Cases	60
<b>Paper - VII</b>	Fundoscopy and Refractions and other procedures	100
<b>Paper - VIII</b>	Pathological Specimens, Microscopic slides, ophthalmic Instruments and appliances, drugs and Viva Voce	100
<b>Total Marks</b>	<b>[Passing = 150 (i.e. 50%) Marks in aggregate]</b>	<b>300</b>