THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

No. 69, ANNA SALAI, GUINDY, CHENNAI – 600 032.

POST GRADUATE DIPLOMA COURSES

SYLLABUS AND CURRICULUM

2021 – 2022

DIPLOMA IN OPHTHALMOLOGY (D.O.)

THE TAMIL NADU Dr. M.G.R MEDICAL UNIVERSITY, CHENNAI

DIPLOMA IN OPHTHALMOLOGY (D.O.)

1.GOAL

The goal of postgraduate medical education in ophthalmology shall be to produce competent specialist

1. who shall recognize the Eye health needs of the community, and carry out professional obligations ethically, compassionately and in keeping with the objectives of the national health policy;

2. who shall have mastered all of the competencies, pertaining to the Ophthalmology that are required to be practiced at primary and secondary levels.

3. who understand quality management systems and are equipped with methods to keep themselves updated in future

4. who shall have acquired a spirit of scientific inquiry and is oriented to the principles of research methodology and epidemiology; and

5. who shall have acquired the basic skills in teaching of the medical and paramedical professionals.

2.OBJECTIVES:

At the end of the postgraduate training the concerned the student should have the following Knowledge, Attitudes and Skills and shall be able to:

1. Recognise the importance of Ophthalmology in the context of the health need of the community and the national priorities in the health sector.

2. Practice Ophthalmology ethically and compassionately.

3. Demonstrate sufficient understanding of the basic sciences relevant to research and practice of Ophthalmology.

4. Diagnose diseases by mastering skills to pick up clinical signs and interpreting test results towards this.

5. Have sound theoretical and practical knowledge to manage illness both medically and where relevant surgically based on principles of Evidence Based Medicine (EBM).

6. Have insight into ones limitations and refer to other centre/colleague for appropriate care of the illness being managed.

7. Identify social, economic, environmental, biological and emotional determinants of health in a given case, and take them into account while planning therapeutic, rehabilitative, preventive and promotive measures/strategies.

8. Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the specialty.

9. Demonstrate skills in documentation of individual case details as well as record morbidity and mortality data relevant to the assigned situation.

10. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behaviour in accordance with the societal norms and expectations.

11. Play the assigned role in the implementation of national health programmes in Ophthalmology, effectively and responsibly.

12. Organise and supervise delivery of Ophthalmic care in the clinic/hospital or the field situation.

13. Develop skills as a self-directed learner, recognise continuing educational needs; select and use appropriate learning resources.

14. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyse relevant published research literature.

15. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.

16. Function as an effective leader of a health team engaged in health care, research or training.

3. COMPONENTS OF POST GRADUATE CURRICULUM

Essential theoretical knowledge

The student is trained to become a specialist who will treat all eye conditions at the primary and secondary level and many of the tertiary care problems, there his/her theoretical knowledge should be broad based and should encompass all of what is there in good multi-volume text book of Ophthalmology.

Essential diagnostic skills - instrumentation

This list is only illustrative and more clinical tests whose importance have not been recognized in the past or newly developed should be learned.

Ophthalmic examination:

- External eye examination with torch and magnification
- Vision assessment and recording in snellen's notation and LogMar
    i. Pediatric visual assessment

- Refraction
    i. Retinoscopy
    ii. Streak Retinoscopy
    iii. Use of trial set
    iv. Use of Jackson's cross-cylinder
    v. Subjective refinement of refraction

- Autorefractometry
    i. Use of and interpretation of autorefractometer

- Slit Lamp Examination
    i. Diffuse examination
    ii. Focal examination
    iii. Retroillumination – direct & indirect
    iv. Sclerotic scatter
    v. Specular reflection
    vi. Staining modalities and interpretation

- Slit Lamp Accessories
    i. Applanation Tonometry
        1. Goldman's applanation

    ii. Gonioscopy
        1. Single or two mirror
        2. Grading of the angle
        3. Testing for occludability
        4. Indentation gonioscopy

iii. 3- mirror examination of the fundus
iv. 78-D / 90-D / 60-D retinal examination
v. Hruby lens examination
vi. Optical pachymetry
vii. Slit lamp photography

- Tonometry
  i. Digital tonometry
  ii. Applanation
  iii. Indentation (commonly Schiotz)
  iv. Electronic tonometry

- Pupil examination
  i. Direct and Consensual
  ii. Relative afferent papillary defect

- Assessment of epiphora
  i. Jone's dye test
  ii. Syringing – performance & interpretation
  iii. Dye disappearance test

- Dry eye evaluation
  i. Schirmer test
  ii. Rose Bengal / Lissamine green staining
  iii. Tear film breakup time
  iv. Tear meniscus evaluation

- Direct ophthalmoscopy
  i. Distant direct
  ii. Use of filters provided

- Indirect ophthalmoscopy
  i. Scleral depression
  ii. Fundus drawing capability
  iii. Use of filters provided

- Colour vision evaluation
  i. Ishihara pseudoisochromatic plates
  ii. Other tests like
    1. Farnsworth – Munsell 100 – hue or 15 – hue tests or
    2. Holmgren's wools

- Use of Amsler's charting
  i. Instructing in the use of and interpreting the chart.

- Corneal topography and corneal mapping

- Corneal thickness assessment
- Specular microscopy of the corneal endothelium

- Keratometry
    i. Performance & interpretation of keratometry
    ii. Diagnosis of situations such as keratoconus
    iii. Keratoscopy

- Diagnosis & assessment of Squint
    i. Hirschberg test
    ii. Ocular position and motility examination
    iii. Versions, ductions, and vergences
    iv. Convergence facility estimation
    v. Cover / Uncover / Alternate cover test
    vi. Use of prism bars or free prisms in assessment of squint
    vii. Use of synaptophore / major amblyoscope
    viii. Use of Bagolini's striated glasses / red filters / Maddox rod
    ix. Use of Worth's four dot test
    x. Use & interpretation of the Hess chart / Lees' screen
    xi. Performance & interpretation of diplopia charting
    xii. Diagnosis of amblyopia
    xiii. Examination for stereopsis

- Exophthalmometry
    i. Detection of early proptosis
    ii. Use of any exophthalmometer like Hertels or Luedde's

- Corneal ulcer investigation
    i. Taking a corneal scraping
    ii. Inoculation into media
    iii. Evaluation of Gram's stain
    iv. Evaluation of KOH preparation

- Use and evaluation of ophthalmic ultrasound
    i. A- scan ultrasound with biometry
    ii. B- scan ultrasound : performance & interpretation

- Interpretation of Optical coherence Tomography images of the eye

- Fundus photography & fundus fluorescein angiography (FFA, FAG)
    i. Doing and evaluating stereoscopic fundus photographs
    ii. Performance of and interpretation of FFA
    iii. Performance of indirect fluorescein angioscopy

- Interpretation of perimetry
    i. Confrontation fields
    ii. Tangent screen
    iii. Static computerized perimetry

1. Interpretation of commonly managed problems

- Interpretation of Electrophysiological studies like ERG, VEP and EOG

- Evaluation of donated eye bank eye

- Radiology
    i. Interpretation of plain skull films
        1. PA-20 (Caldwell's view)
        2. PNS (Water's view)
        3. Lateral
        4. Optic canal views
        5. Localisation of intra ocular and intra orbital FBs

    ii. Interpretations of contrast studies
        1. Performance & interpretation of dacryocystograms

    iii. Interpretation of CT Scans & MRI Scans
        1. Orbital CT and MRI evaluation
        2. Brain CT interpretation

<u>Non Ophthalmic clinical examination:</u>

General medical examination at the undergraduate level
With special emphasis on a good Neurological examination and Examination of the sinus, Anterior nose and mouth

Essential Research Skills leading to writing of a Research paper
Basic knowledge in epidemiology and biostatistics

Medical Ethics/bioethics and Medicolegal aspects:
Students are encouraged to attend workshops/CME's on Bioethics conducted by the University and other reputed Institutions.
Medical ethics, moral and legal issues, Medical Audit are part and parcel of the curriculum and syllabus.

Other skills required

1. Contact lenses
    a. Pre fitting assessment
    b. RGP and soft lens fitting
    c. Special lens fitting eg keratoconus
    d. Troubleshooting
2. Low vision assessment (LVA)
    a. The basics of LVA assessment and selection of aid with knowledge of availability & cost.

b. Should have a basic knowledge of the facilities available for the blind including government concessions, and life style supports. Student should be exposed to LVA clinic
c. An exposure to Cerebral Visual insufficiency evaluation as part of pediatric ophthalmology posting is desirable.

3. Community ophthalmology
    a. Ability to organize institutional screening
    b. Ability to organize peripheral eye screening camps
    c. Knowledge and ability to execute guidelines of National Program for Prevention of Blindness- Student should be exposed to the activities of the outreach service division.

4. Presentation skills
    a. Should part take in seminar presentation in the department .
    b. Should make presentations in conferences and CME programmes. Eg Free paper sessions or posters.

5. Organisation
    a. Ability to organize meetings, seminars and symposia
    b. Ability to get along with colleagues and work as a team with the other members of the department.
    c. Help organize exams in the department for various courses.

6. Communication skills
    a. With patients and colleagues
    b. Should read books on clinical communication skills and attend training programmes if available.

7. Record keeping and Quality
    a. Ability to maintain records as scientifically as possible
    b. Knowledge of computer software especially Excel and a statistical package. This is best learnt while doing the Research paper.
    c. Should know the components of quality management systems and be able to do clinical audits

8. Teaching
    a. The ability to pass on skills acquired to one's juniors, theoretical, procedural and surgical

4.THEORY SYLLABUS:

a. The Basic Sciences :
    i. Orbital and Ocular anatomy
        a. Gross anatomy
        b. Histology
    ii. Ocular Physiology

iii. Pathology
   a. General pathology
   b. Ocular pathology : Gross pathology, Histopathology.

iv. Biochemistry: General biochemistry, Biochemistry applicable to ocular function.

1. Microbiology
   a. General Microbiology
   b. Specific microbiology applicable to the eye
   c. Immunology with particular reference to ocular immunology

b. Optics and Refraction
   a. Physical optics
   b. Geometric optics
   c. Visual optics
   d. Applied optics including optical devices and contact lenses

c. Clinical Ophthalmology
   i. Disorders of Refraction
   v. Disorders of the Lids
   vi. Disorders of the Lacrimal System
   vii. Disorders of the Conjunctiva
   viii. Disorders of the Sclera
   ix. Disorders of the Cornea
   x. Disorders of the Uveal Tract
   xi. Disorders of the Lens
   xii. Disorders of the Retina
   xiii. Disorders of the Optic Nerve & Visual Pathway
   xiv. Disorders of the Orbit
   xv. Glaucoma
   xvi. Neuro ophthalmology
   xvii. Paediatric ophthalmology
   xviii. Systemic ophthalmology (Ocular involvement in systemic disease)
   xix. Immune ocular disorders
   xx. Strabismus & Ocular motility disorders

d. Community Ophthalmology
   1. Understanding of Ophthalmic disease burden in the community
   2. Community based eye care delivery
   3. Community based rehabilitation
   4. Community based eye research
   5. World and National health programmes
   6. Basics of epidemiology and biostatistics

5.TEACHING LEARNING METHODS:

Postgraduate training follows adult teaching principles. The faculties are supervisors cum facilitator and not passive transmitters of knowledge like in schools. An apprentice training model is followed.

1. Outpatient training
   Students will see out patients (OP) in the clinic initially with the consultant; progressing to independently seeing patients and then discussing with faculty and finally seeing patients independently and treating patients. The faculty will be there in the OP to clear doubts at any stage.

2. Inpatient training
   Students will work up the more difficult and surgical patients admitted to the ward and be responsible for their care under the faculty in charge of the wards. The cases in the wards will be discussed during rounds so that students gain practical experience.

3. Surgical training:
   This will be graded. The student will first train in the wet lab and get used to handling the microscope and micro-instruments. They will also do minor procedures in the treatment room under supervision. Once wet lab training is over they will go to the operation theatre (OT) and in a graded manner first observing, then assisting and being assisted and finally doing independently and training juniors.

4. Emergency training:
   Students will take on calls and attend emergencies and ward calls in a graded basis starting with being first on call. They will also assist and do emergency surgeries while being on call. While on call they will learn how to harvest donated eyes and see inpatients of other department requiring eye consultations. All students will have to attend Basic life support training.

5. Clinical Case discussions
   a) Every effort should be made to include as wide a variety of cases as possible over two years with multiple repetitions.

   b) Case discussions will be a constant feature of round where patient's records written by the student and treatment options will be discussed. Examination methods, evidence based management, latest developments etc can also be discussed.

   c) Case presentation at other, in-hospital multidisciplinary fora may be done.

6. Seminars
   a. Seminars should be conducted at least once weekly. The topics selected should be repeated once in 2 years so as to cover as wide a range of topics as possible.

   b. Seminars could be individual presentations or a continuum (large topic) with many candidates participating.

7. Journal Clubs

This also should be done a once a week or once in two week exercise. The topics selected should be current. It could be done topic wise or journal wise. Indexed journals are recommended.

8. CPC

Student are encouraged to do Clinico pathological conferences (CPCs)

9. Lectures

   a) Lectures to candidates should be in the form of instructional courses at the beginning of the academic term should be given so that students get a broad idea about the speciality.. These would include topics such as dark room techniques, fundus fluorescein angiography, evaluation of perimetry, squint evaluation and management, slit lamp examination with accessories such as gonioscopy etc.

   b) Lectures could also be arranged round the year on subspecialty topics.

   c) During the course, the candidates should have one lecture / one seminar on National programs (eg. National Programme for Control of Blindness, Trachoma program etc.), International assistance schemes for execution of national program (DAN-PCB , Lion's International, Christoffel-Blunden Mission etc). These would be addressed to in detail, including current status etc.. In addition, it would be useful to include a few lectures on other non-ophthalmic National programs being undertaken in the country.

10. Research Activities leading to Research paper

A candidate should learn to be conversant with journal browsing, medline search etc. to help in clinical and research work. They should also be given opportunity to attend research methodology classes. They should be involved in departmental research activities so that they can present in national conferences.

11. Teaching skills:

Every postgraduate student should be involved in undergraduate teaching also.
One or two theory classes for undergraduates could be attended and one or two theory classes could be taken for undergraduates for selected topics.

Undergraduate clinical teaching is another teaching skill that the student should pick up during the course. At least five to six undergraduate clinical classes should be taken by the final year student (MS) before completion of his/her course.

12. Orientation program:

All postgraduates from all specialties should have an introductory program in the institution where they are informed about candidate responsibilities, working systems, library usage, lab protocols etc. Specific orientation regarding the departmental working could be made as an introductory talk in the department concerned.

6.STRUCTURED TRAINING PROGRAM

Year – wise structured training schedule

First year:

1. Theoretical knowledge
    a. Basic sciences text books should have been read during this period. Optics and refraction book and a medium sized Single volume clinical Ophthalmology test should be read (Books from 1 to 9 in the text book list).

    b. It is useful to have an internal examination of the basic sciences at the end of the first year, which will decide appearance at the final examination.

    c. Clinical ophthalmology.

2. Clinical examination and diagnostics
    a. The art of history taking and all clinical examination skills should be learnt. The order of examination and recording should also be learnt during this time.

    b. By third month students should see outpatient cases independently and under supervision be encouraged to make clinical and surgical decisions.

    c. The art of retinoscopy and subjective refraction should be learnt.

3. Diagnostics
    a. Should have an exposure to all the equipments with the students themselves taking the test and then doing the tests themselves under supervision of the technician in charge. They should start to learn to interpret the tests.

4. Surgery
    a. Extra ocular surgery including
        i. Destructive procedures like evisceration must have been done with or without assistance

        ii. Local Anaesthesia (retrobulbar, facial and peribulbar blocks mastered)

        iii. Subconjunctival injections

        iv. Assisting for squint surgery

        v. Assisting for lid surgery. Tarsorrhaphy should be performed independently as also the simpler oculoplastic procedures.

        vi. Chalazion and Pterygium surgery.
        vii. Lid and corneal foreign body removal, suture removal on the slit lamp etc.

        viii. At the end of the first year, the student should have participated as assistant in most of the intra ocular procedures as an assistant.

        ix. Cataract surgery :
            1. Cataract surgery should be approached in stages, emphasis to be given on microscopic surgery.
            2. At the end of the first year, the student should be able to do standard extracapsular cataract extraction at least under guidance.

5. Special training courses in Research methodology, Ethics, Good clinical practice, Basic life support, Quality management and clinical audits, communication skills etc should be undertaken.

Second year :

1. Theoretical Knowledge :
    a. Student should read the standard text books and should also read a multi-volume text book for the more common diseases.

2. Clinical examination and diagnostics
    a. The student is encouraged to take diagnostic investigational and therapeutic decisions on his / own. He / she should be able to manage most of the common problems that arise without guidance. However, the degree of freedom allowed in decision making is left to the confidence of the teacher in the student's abilities. It is to be encouraged. May require guidance for more complex cases.

3. Diagnostics: The student should be conversant and at ease with most of the diagnostic procedures. The basic interpretation of the investigations should be mastered.

4. Surgical skills
   a. At the end of the second year , the student should capable of operating, without assistance, but under supervision, all varieties of cataract except congenital cataract. He / she should also know the management of cataract induced complications and cataract surgical complications (management of vitreous loss).

   b. He/she should have performed the basic antiglaucoma procedures such as trabeculectomy either with assistance or under supervision

   c. Extra ocular surgery such as squint surgery could be performed with assistance if possible.
   d. In addition, lacrimal sac surgery such as dacryocystectomy and dacryocystorhinostomy should be possible with assistance or under supervision.

   e. In addition, should ideally have assisted or atleast observed other surgeries such as retinal surgery, vitrectomy, orbit surgery, advanced oculoplastic surgery etc.

5. Conferences and workshops
   a. The candidate should have attended one or two regional workshops and can attend one national conference. Presentation of a free paper in the workshop / National Conferences is to be encouraged.

Details of Training :-		
FIRST YEAR:		
Out Patient and Casualty	:	6 months
In Patient and O.T.	:	6 months
SECOND YEAR**:** Concurrently with OP and IP work candidate should have exposure to special clinics as follows		
Cornea Clinic	:	1 5 days
Glaucoma Clinic	:	1 5 days
Neuro Ophthalmology Clinic	:	1 5 days

Orbit Clinic	:	1 5 days
Orthoptic Clinic	:	1 5 days
Retina Clinic	:	1 5 days
Uvea Clinic	:	15 days
Refraction Room	:	2 months
Eye campus & Community Ophthalmology	:	45 days
Out Patient	:	5 months

Rotation and Posting in other Departments

There will be no external posting and the whole two years should be spent in the department.

Essential surgical skills

Procedure	Nature of activity * & number			
	O	A	PA	PI
1. Operating theatre				
a. Anaesthesia :				
i. Retrobulbar anaesthesia	-	-	20	20
ii. Peribulbar anaesthesia	-	-	20	20
iii. Parabulbar anaesthesia	✓	-	-	-
iv. Facial blocks				
• O'Brein	-	-	-	20
• Atkinson	-	-	-	5
• van Lint & modifications	-	-	-	5
v. Frontal blocks	-	-	-	2
vi. Infra orbital blocks	-	-	-	1
vii. Blocks for sac surgery	-	-	-	5
b. Magnification :				
i. Operating microscope : Familiarity with use is essential	-	-	-	✓
ii. Operating loupe				
c. Lid surgery:				
i. Tarsorrhaphy	-	-	-	10
ii. Ectropion and entropion procedures	-	-	-	2
iii. Ptosis surgery	-	2	-	-

iv. Lid repair following trauma and surgical excision of lid for tumours etc.	-	-	2	-
v. Epilation, electrolysis, cryotherapy etc.	-	-	-	10
d. Destructive procedures:				
i. Evisceration with or without implant	-	-	-	3
ii. Enucleation with or without implant	-	-	-	5
iii. Modified enucleation procedures for intraocular tumours		-	1	-
e. Sac surgery				
i. Dacryocystectomy	-	-	-	2
ii. Dacryocystorhinostomy	-	-	-	3
iii. Probing for congenital obstruction of nasolacrimal duct	-	-	1	-
f. Extraocular muscle surgery				
i. Recession and resection procedures on the horizontal recti	-	-	2	-
g. Cataract surgery				
i. Standard ECCE with or without IOL implantation.	-	-	-	10
ii. Small incision ECCE with or without IOL implantation	✓			
iii. Membranectomy	✓			
iv. Secondary AC or PC IOL implantation	✓			
v. Phacoemulsification	✓			
vi. Intra capsular cataract extraction	✓			
vii. Vectis extraction		-	1	-
h. Retinal surgery				
i. Needs to know how to assist in external procedures such as buckling	-	1	-	-
ii. Prophylactic cryotherapy	✓	-	-	-
i. Orbit surgery				
i. Anterior orbitotomy for diagnostics and therapy	✓	-	-	-
ii. Lateral orbitotomy for tumours	✓	-	-	-
iii. Incision and drainage via anterior orbitotomy for abscess	-	1	-	-
iv. Exenteration	✓	-	-	-
v. Fine needle aspiration biopsy of orbital disease	✓	-	-	-
(if experienced pathologist is available)				

j.	Vitrectomy				
i.	Intra vitreal and intra cameral (anterior chamber) injection techniques and dosages, particularly for endophthalmitis management.	-	-	2	-
ii.	Needs to know the basics of open sky vitrectomy (anterior segment) as management of cataract surgery complication	-	-	-	2
iii.	Automated vitrectomy	✓			
iv.	Assist vitrectomy surgeon if facility exists.				
k.	Keratoplasty				
i.	Assisting or doing penetrating keratoplasty (therapeutic, optical)	-	-	1	-
ii.	Lamellar keratectomy	✓	-	-	-
l.	Glaucoma surgery				
i.	Trabeculectomy	-	-	-	3
ii.	Pharmacological modifications of trabeculectomy				
iii.	Goniotomy				
iv.	Cyclocryotherapy and other cyclodestructive procedures	-	-	-	2
m.	Surface ocular procedures				
i.	Pterygium excision with modifications	-	-	-	5
ii.	Conjunctival grafting	-	-	2	-
iii.	Biopsy of cornea and conjunctiva	-	-	-	1
n.	Pterygium excision	-	-	-	10
o.	Tarsorrhaphy	-	-	-	10
p.	Retrobulbar, parabulbar anaesthesia	-	-	-	20
2. Outpatient :					
a.	Manual diagnostic procedures such as syringing, corneal scraping, conjunctival swab collection, conjunctival scraping etc.	-	-	-	10
b.	Conjunctival and corneal foreign body removal on the slit lamp	-	-	-	10
c.	Chalazion incision and curettage	-	-	-	10
d.	Biopsy of small lid and tumours	-	-	3	-
e.	Suture removal skin, conjunctival, corneal, and corneoscleral	-	-	-	5
f.	Subconjunctival injection	-	-	-	10
g.	Posterior Sub- Tenon’s injections	-	-	-	5

h. Artificial eye fitting	-	-	-	5
i. Laser procedures	✓	-	-	-
i. Laser capsulotomy	✓	-	-	-
ii. Laser iridotomy	✓	-	-	-
iii. Laser trabeculoplasty	✓	-	-	-
iv. Panretinal photocoagulation	✓	-	-	-
v. Focal photocoagulation	✓	-	-	-

* The procedures that the student should have:
  O = Watched and Observed
  A = Assisted the operating surgeon
  PA = Performed with Assistance
  PI = Performed Independently

7. Evaluation of the candidates in both theory and practicals will help the candidate in improvement of his/her knowledge, skills and attitude.

8. COMPETENCY ASSESSMENT:

- OVERALL:

a) Communication / commitment / Contribution / Compassion towards patients and Innovation () () - 5 Marks

b) Implementation of newly learnt techniques/skills ()

- Number of cases presented in Clinical Meetings/ Journal clubs/seminars - 5 marks

- Number of Posters/Papers presented in Conferences/ Publications and Research Projects - 5 marks

- No. of Medals / Certificates won in the conference / Quiz competitions and other academic meetings with details. - 5 marks

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Total 20 Marks

PG CLINICAL COURSES

VIVA including Competency Assessment - 80 Marks (60 + 20)

Log Book - 20 marks

ASSESSMENT SCHEDULE IS AS FOLLOWS

Year of study	Period				Total Max.20 marks
I year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
II year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
	AVERAGE				20 Marks

9.PUBLICATION IN UNIVERSITY JOURNAL OF MEDICAL SCIENCES:

Regarding submission of articles to the University Journal of Medical Sciences for all the PG Degree/Diploma courses, it is mandatory that the students have to submit at-least one research paper. Case Reports are not considered as Research Paper

10.THEORY EXAMINATION

Paper I: Basic Sciences related to Ophthalmology

Paper II: Clinical Ophthalmology

Paper III: Principals and Practice of Surgery of Eye and related topics

Question Paper Pattern : Paper I, II & III

I .Elaborate on: 2 X 15 = 30 marks

II. Write notes on: 10 X 7 = 70 marks

Total: 100 marks

11. CLINICAL EXAMINATION :

	No. of Cases		Examination		Questioning time
Long Case	1		30 minutes	50 marks	10 minutes
Short Case Short Case (Clinical) 2 Retinoscopy 1 Funduscopy 2	5	(5 X 20)	50 minutes	100 marks --- **150 marks**	5 minutes x 5 = 25 minutes
OSCE		5 stations x 4 marks		20 marks	
Ward Rounds/Spotters		5 x 6 marks		30 marks	5 minutes x 5 = 25 minutes
VIVA VOCE				80 marks	
Log Book				20 marks	
Total				**300 marks**	

1. Long case :
    a. Duration: 30 minutes (20 minutes for examination 10 min for questions)
    b. Marks : 50 marks
    c. Type of case:
        i. Neuro ophthalmology
        ii. Proptosis
        iii. Sclerokeratouveitis
        iv. Uveitis with complications
        v. Lens induced complications
        vi. Keratoplasties
        vii. Complex posterior segment problems
        viii. Glaucoma

2. Short cases:

    a. Two short cases of 20 marks each. (2 x 20) = 40
    b. Duration: 15 minutes (10+5)

3. Fundus cases:

    a. Two fundus case each of 20 marks (2 x 20) = 40 marks
    b. Duration: 15 minutes (10 + 5)
    c. Type of cases:
        i. Rhegmatogenous retinal detachment
        ii. Diabetic retinopathy, background & proliferative
        iii. Vasculitis
        iv. Tractional RD
        v. Hypertensive retinopathy and combinations of the same with DR
        vi. Mass lesions
        vii. High myopia with degeneration
        viii. Coloboma choroids, simple or with detachment
        ix. Posterior uveitis, retinitis etc.
        x. Pigmentary Retinopathy

4. Refraction: (1 x 20) = 20 marks

    a. One refraction case of 20 marks each. Only retinoscopy need to be done. 15 minutes (10+5)

12.LOG BOOK

The log book is a record of the important activities of the candidates during his training.

The post graduate students shall maintain a record(log)book of the work carried out by them and the training program undergone during the period of training.

Periodic review of Log book and Dissertation have to be done in the Department once in every 6 months and the review report to be submitted to the University for all Postgraduate Degree courses.

The Log Book includes academic activities as well as the presentations and procedures carried out by the candidate.

13. VIVA:

VIVA including Competency Assessment - 80 Marks (60 + 20)

- 80 Marks (60 marks viva + 20 marks competency)

Students will be examined by all the examiners together about students comprehension of the components of course contents, analytical approach and interpretation of data. This section will carry 60 marks. The examination will include the following:

i. Community ophthalmology
ii. Conjunctiva,Cornea, Lens
iii. Uvea and Glaucoma
iv. Neuro-ophthalmology & Systemic disorders
v. Orbit & oculoplastics
vi. Retina etc.
vii. Surgical instruments
viii. Pathology gross specimens
ix. Pathology slides
x. Microbiology slides
xi. Radiology
xii. Perimetry
xiii. Miscellaneous including all investigations reports

Ward rounds/Spotters :
This tests the students ability to manage the cases admitted to the ward. The skill assistant will give a 30 second case history and then the student is asked to do a 2 minute examination that is indicated for the case. Subsequently the candidate is quizzed about the case for another 2 to 3 minutes.

Examples of possible ward round cases:
-A patient who had complications during cataract surgery.
-Patient following a squint surgery.
-Patient following trabeculectomy
-Patient admitted for methyl-prednisolone injection.
-Case of corneal ulcer
-Case of ocular trauma- penetrating, blunt, IOFB etc
-Orbital or lid surgeries
-Posterior segment surgeries

14. OSCE : (5 x 3 = 15)

Objective structured clinical exams are clinical pictures or cases with a structured set of questions. There will be 5 stations 4 to 5 minutes and each question will be of 4 marks.

I Observation station
(e.g) Schiotz Tonometry
Observer to note
a) Whether patient's consent sought
b) Whether patient is properly instructed
c) Whether Tonometer is checked
d) Whether Topical drops applied
e) Way of handling
f) Whether the chart is referred

II Microbiology slide
a) Identification
b) Points for identification
c) A clinical Question relevant to the organism

III Pathology Slide
a) Identification
b) Points for identification
c) clinical Question relevant to the slide

IV Anterior segment picture
a) Identification
b) Points for identification
c) A clinical Question relevant to the Picture

V Posterior segment picture
a) Identification
b) Points for identification
c) A clinical Question relevant to the Picture

15. Recommended Text books:

1. Anatomy:
   a. Wolff
   b. Snell's
2. Physiology:
   a. Adler's Physiology of the Eye
3. Immunology:
   a. Ocular immunology
4. Ophthalmic Pathology:
   a. Yanoff & Fine
   b. Zimmerman

5. Pharmacology:
    a. Havener
6. Refraction:
    a. Duke Elder's practice of refraction
    b. Elkington &Frank
7. Jack Kanski: Clinical Ophthalmology
8. Parson's text book of Ophthalmology
9. Stallard's Eye Surgery
10. Cataract Surgery & its Complications by Jaffe
11. Duane's System of Ophthalmology
12. Jakobiec Series
13. Peyman's Series
14. Cataract Surgery & its Complications by Jaffe
15. Duke-Elder's System of Ophthalmology
16. Podos & Yanoff Series

Reference books:

1. American Academy of Ophthalmology series BCSC latest edition released – this an update (not textbook) for specialists who have passed their qualification exams
2. Cornea :
    a. Smolin & Thoft
    b. Grayson
    c. Kaufman & Leibowitz
3. Glaucoma
    a. Bruce Shields Text Book of Glaucoma
    b. Krupin & Shields Series on Glaucoma
    c. Becker & Schaeffer's Text Book of Glaucoma
    d. Anderson's Computerised Perimetry
    e. Harrington's Text Book of Perimetry
    f. Leiberman and Drake : Computerised perimetry

4. Retinal disease:
    a. Stephen Ryan's Retina
    b. Ron Michel: Retinal Detachment
    c. Steve Charles: Basic Vitrectomy

5. Ultra Sound:
    a. Sandra Byrne & Ronald Green: Ophthalmic Ultrasound

6. Uvea:
    a. Nussenblatt & Palestine
    b. Smith & Nozik
7. Neuroophthalmology:
    a. Walsh & Hoyt
8. Orbital diseases:
    a. Rootman's diseases of the orbit
    b. Jakobiec & Snow – Diseases of the orbit

9. Tumours:
    a. Jerry Shields – Diagnosis and management of orbital tumours
10. Strabismus:
    a. Gunter von Noorden
    b. Mein &Trimble
    c. Practical orthoptics in the treatment of squint-Keith Lyle

11. Paediatric ophthalmology
    a. Kenneth Wright

ADDITIONAL READING

1. Indian Council of Medical Research, "Ethical Guidelines for Biomedical Research on Human Subjects", I.C.M.R, New Delhi, 2000.

2. Code of Medical Ethics framed under section 33 of the Indian Medical Council Act, 1956. Medical Council of India, Kotla Road, New Delhi.

3. Francis C M, Medical Ethics, J P Publications, Bangalore, 1993.

4. Indian National Science Academy, Guidelines for care and use of animals in Scientific Research, New Delhi, 1994.

5. Internal National Committee of Medical Journal Editors, Uniform requirements for manuscripts submitted to biomedical journals, N Engl J Med 1991; 424-8

6. Kirkwood B R, Essentials of Medical Statistics , 1st Ed., Oxford: Blackwell Scientific Publications 1988.

7. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers, 1989.

8. Compendium of recommendations of various committees on Health and Development (1943-1975). DGHS, 1985 Central Bureau of Health Intelligence, Directorate General of Health Services, min. of Health and Family Welfare, Govt. of India, Nirman Bhawan, New Delhi. P - 335.

9. National Health Policy, Min. of Health & Family Welfare, Nirman Bhawan, New Delhi, 1983

10. Srinivasa D K etal, Medical Education Principles and Practice, 1995. National Teacher Training Centre, JIPMER, Pondicherry.

**** Note : The editions are as applicable and the latest editions shall be the part of the syllabi.**

16.JOURNALS

1. British Journal of Ophthalmology
2. American Journal of Ophthalmology
3. Indian Journal of Ophthalmology
4. Eye Journal Ophthalmology
5. Survey of Ophthalmology
6. IOC
7. Archives of Ophthalmology
8. Ophthalmology

Recommended Books and Journals: The list is not exhaustive and is just a guide- Other books with similar standard can be used

LOG BOOK

Table 1 : Academic activities attended

Name: Admission Year:

College:

Date	Type of Activity Specify Seminar, Journal Club, Presentation, UG teaching	Particulars

LOG BOOK

Table 2 : Academic presentations made by the student

Name: Admission Year:

College:

Date	Topic	Type of Presentation Specify Seminar, Journal Club, Presentation, UG teaching etc.

LOG BOOK

Table 3 : Diagnostic and Operative procedures performed

Name: Admission Year:

College:

Date	Name	ID No.	Procedure	Category O, A, PA, PI*

*** Key:** O - Washed up and observed
A - Assisted a more senior Surgeon
PA - Performed procedure under the direct supervision of a senior surgeon
PI - performed independently

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