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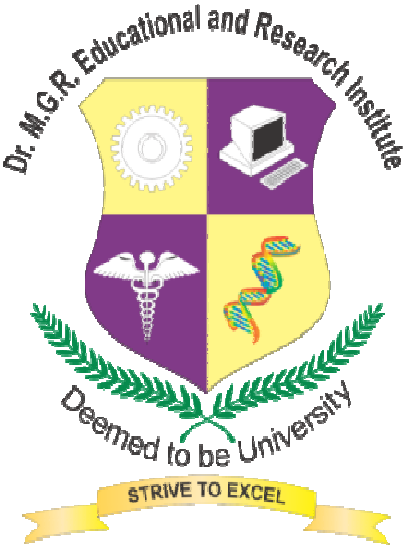

SYLLABUS & CURRICULUM
for
M.S. OPHTHALMOLOGY

2020 onwards

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Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE TRUST

M. S. OPHTHALMOLOGY

Goal : The Master's Course in Ophthalmology is a 3-year integrated course, after satisfactory completion of which the candidate shall be able to practice ophthalmology competently and safely in the community that he/she serves.

Objectives of the course: With the knowledge and skills developed at the completion of the course, the candidate shall be able to:

1. offer to the community, the current quality of 'standard of care' in ophthalmic diagnosis as well as therapeutics, medical or surgical, for common as well as referred conditions.
2. periodically self assess his or her performance and keep abreast with ongoing advances in the field and apply the same in his /her practice.
3. be aware of his or her own limitations to the application of the specialty in situations which warrant referral to major centers or individuals more qualified to treat.
4. apply research and epidemiological methods during his / her practice. The candidate shall be able to present or publish work done by him/her.
5. contribute as an individual/or in a group or institution towards the fulfillment of national objectives with regard to prevention of blindness.
6. effectively communicate with patients or relatives so as to educate them sufficiently and give them the full benefit of informed consent to treatment and ensure compliance.
7. effectively communicate with colleagues.

Course Contents

Essential theoretical knowledge

These are only broad guidelines and are illustrative, there may be overlap between sections.

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.

v. Microbiology

a. General Microbiology

b. Specific microbiology applicable to the eye

c. Immunology with particular reference to ocular immunology

vi. Geometric and ophthalmic optics

a. Basic physical optics

b. Ophthalmic optics

c. Applied optics including optical devices

b. Clinical Ophthalmology

i. Disorders of Refraction

ii. Disorders of the Lids

iii. Disorders of the Lacrimal System

iv. Disorders of the Conjunctiva

v. Disorders of the Sclera

vi. Disorders of the Cornea

vii. Disorders of the Uveal Tract

viii. Disorders of the Lens

ix. Disorders of the Retina

x. Disorders of the Optic Nerve & Visual Pathway

xi. Disorders of the Orbit

xii. Glaucoma

xiii. Neuro ophthalmology

xiv. Paediatric ophthalmology

xv. Systemic ophthalmology (Ocular involvement in systemic disease)

xvi. Immune ocular disorders

xvii. Strabismus & Amblyopia

Essential diagnostic skills - instrumentation

- Tonometry
  i. Applanation
  ii. Indentation (commonly Schiotz)
- Assessment of epiphora
  i. Jone's dye test
  ii. Syringing – performance & interpretation
- Dry eye evaluation
  i. Schirmer test
  ii. Rose Bengal staining
  iii. Tear film breakup time
  iv. Tear meniscus evaluation
- Corneal ulceration
  i. Taking a corneal scraping
  ii. Inoculation into media
  iii. Evaluation of Gram's stain
  iv. Evaluation of KOH preparation
  v. Corneal wedge biopsy
- Direct ophthalmoscopy
  i. Distant direct
  ii. Media assessment
  iii. Use of filters provided
- Indirect ophthalmoscopy
  i. Scleral depression
  ii. Fundus drawing capability
  iii. Use of filters provided

- 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 mirror gonioscope
        2. Gonioprism
        3. Grading of the angle
        4. Testing for occludability
        5. Indentation gonioscopy
    iii. 3- mirror examination of the fundus
    iv. 78-D / 90-D / 60-D examination
    v. Hruby lens examination
    vi. Optical pachymetry
    vii. Slit lamp photography
- Colour vision evaluation
    i. Ishihara pseudoisochromatic plates
    ii. Other tests including
        1. Farnsworth – Munsell 100 – hue or 15 – hue tests
        2. Holmgren's wools
        3. Edridge –Green lantern

- Use of Amsler's charting
    i. Instructing in the use of and interpreting the chart.
- Corneal topography and corneal mapping
    i. Interpretation of corneal topography mapping
- Specular microscopy of the corneal endothelium
- Keratometry
    i. Performance & interpretation of keratometry
    ii. Diagnosis of situations such as keratoconus
    iii. Keratoscopy
- 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
- Refraction
    i. Retinoscopy
    ii. Streak Retinoscopy
    iii. Use of trial set
    iv. Use of Jackson's cross-cylinder
    v. Subjective and objective refraction
- Autorefractometry
    i. Use of and interpretation of autorefractometer
- Diagnosis & assessment of Squint
    i. Ocular position and motility examination
    ii. Versions, ductions, and vergences
    iii. Convergence facility estimation
    iv. Cover / Uncover / Alternate cover test
    v. Use of prism bars or free prisms in assessment of squint
    vi. Use of synaptophore / major amblyoscope

vii. Use of Bagolini's striated glasses / red filters / Maddox rod
viii. Use of Worth's four dot test
ix. Use of minor amblyoscope
x. Use & interpretation of the Hess chart / Lees' screen
xi. Performance & interpretation of diplopia charting
xii. Diagnosis of amblyopia

- Exophthalmometry
    i. Use of Hertel's exophthalmometer
    ii. Use of Luedde's exophthalmometer
    iii. Use of other exophthalmometers
    iv. Measurement of proptosis or exophthalmos
- Use and evaluation of ophthalmic ultrasound
    i. A- scan ultrasound with biometry
    ii. B- scan ultrasound : performance & interpretation
- Interpretation of perimetry
    i. Tangent screening
    ii. Goldman perimeter & interpretation
    iii. Static computerized perimetry
        1. Interpretation of commonly managed problems
- Radiology
    i. Interpretation of plain skull films
        1. PA-20 (Caldwell's view)
        2. PNS (Water's view)
        3. Lateral
        4. Submentovertical
        5. Optic canal views
        6. Localisation of intra ocular and intra orbital FBs

ii. Interpretations of contrast studies

1. Performance & interpretation of dacryocystograms
2. Performance and interpretations of orbital venograms
3. Interpretation of carotid angiograms

iii. Interpretation of CT – Scans & MRI Scans

1. Orbital CT interpretation & orbital MRI evaluation
2. Brain CT interpretation

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**
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 = Washed and Observed

A = Assisted the operating surgeon

PA = Performed with Assistance

PI = Performed Independently

ESSENTIAL RESEARCH SKILLS

1. Basic statistical knowledge
    a. Ability to undertake clinical & basic research
    b. Descriptive and Inferential statistics
    c. Ability to publish results of one's work
2. Ability to constructively criticize publications in the field and without
3. This could be achieved during the course by attending workshops on Research Methodology, basic statistics classes and regularly having Journal Clubs etc. where selected articles could be taken and evaluated for content quality and presentation.

OTHER SKILLS REQUIRED

1. Contact lenses
    a. Assessment
    b. RGP fitting
    c. Soft lens fitting
    d. Troubleshooting
2. Subjective correction of refraction
    a. Techniques of subjective correction
    b. Knowledge of basic optical devices available and relative advantages and disadvantages of each.
3. Low vision aids
    a. The basics of fitting with knowledge of availability & cost
4. 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

5. Presentation
    a. Ability to present one's work effectively at various scientific for a particularly free papers in scientific conferences within allotted framework of time
6. 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. Ability to interact with and work as a team with other disciplines that may exist in the same hospital.
7. Communication skills
    a. With patients
    b. With colleagues
8. Record keeping
    a. The ability to maintain records as scientifically as possible
    b. Knowledge of computer software is helpful
9. Teaching
    a. The ability to pass on skills acquired to one's juniors, theoretical, procedural and surgical

Year – wise structured training schedule

First year

1. **Theoretical knowledge**
    a. Basic sciences should be addressed during this period
    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 basics of history taking, order and correct methods of examination and recording have to be learnt during this time.

b. Clinical and surgical decision making is encouraged under supervision.

3. Diagnostics

a. All procedures in bold should as far as possible be done and the student should be fairly conversant with most of the techniques marked in bold.

4. Surgery

a. Extra ocular surgery including

i. Destructive procedures must have been done independently with or without assistance

ii. Local Anaesthesia (retrobulbar and peribulbar blocks)

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.

Second Year :

1. **Theoretical Knowledge** :
    a. Here stress will be laid on clinical ophthalmology
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**
    a. The student should be conversant and at ease with most if not all the diagnostic procedures outlined in bold. Other procedures are optional skills if facility is available in the department. This is particularly so for the Master's candidate. However, as far as possible, it is advisable to make all such facility available in the department.
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.

d. In addition, lacrimal sac surgery such as dacryocystectomy and dacryocystorhinostomy should be possible with assistance or under supervision.
e. In addition, the Master's candidate should ideally have assisted in the other surgery 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 one national conference if possible. Presentation of a free paper at these venues is to be encouraged.

Third year :

1. **Theoretical knowledge** :
    a. Should be thorough with basic clinical ophthalmology with extensive and intensive reading
2. **Clinical examination and diagnostics**
    a. Should be conversant with all aspects of clinical examination and decision making. Independent decision making and investigational and management freedom should be given at this stage for the more usual situations. However, complex cases could be discussed with consultant and degree of freedom of decision making is left to the consultant's discretion.
3. **Surgical skills**
    a. Routine skills are honed during this period.
    b. Cataract surgery should be done independently without supervision or assistance.
    c. Antiglaucoma surgery may be done.
    d. Can assist other procedures such as Retinal surgery, orbit surgery etc. The choice of doing the surgery with assistance and supervision should be left to the discretion of the consultant.

4. **Conferences and workshops**

    a. The candidate by this time should have attended at least one national conference. He / she should be given time off to attend regional workshops and conferences particularly those dealing with the state of art.

Rotation and Posting in other Departments

In institutions where subspecialities are not being usually performed, (eg. VR surgery, orbit surgery etc.), students could be deputed for a month or so in institutions in which these specialities are highly developed.

For an MS student, optional rotation postings to allied departments would include

Plastic Surgery

Neurology / Neurosurgery

Intensive Care

ENT

However, posting to these allied specialities would depend upon the head of department's discretion. The total duration of posting should not exceed 4 months.

Teaching-Learning Activities

1. **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 on the patient's records written by the student is to be encouraged as it helps exercise the student's diagnostic and decision making skills.

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

2. 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.

c. Each candidate shall present at least four seminar a year and a total of 12 seminars in 3 years

3. Journal Clubs

a. This also should be 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.

b. Each candidate shall present journals allotted at least four times in a year and a total of 12 such presentations be made in 3 years

4. CPC

Clinico pathological exercises (CPCs), are useful and should be done.

5. Lectures

a) Lectures to candidates should be in the form of instructional courses at the beginning of the academic term. 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.

6. Research Activities

A candidate should learn to be conversant with journal browsing, medline search etc. to help in project and clinical and research work.

7. Dissertation & research meetings

Departmental meetings should be held to overview research work done, particularly satisfactory conduct and progress of dissertation topics. These could be conducted once in 3 months either as an additional activity or in lieu of a journal club.

8. 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 his/her course is over. This may be supervised by a consultant if necessary.

9. 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.

10. Dissertation

Every candidate pursuing MS degree course in Ophthalmology is required to carry out work on a selected research project under the guidance of recognised postgraduate teacher. The results of such a work shall be submitted in the form of a dissertation.

1. The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of a problem, formulation of a hypothesis, search and review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, comparison of results and drawing conclusions.
2. Every candidate shall submit to University in the prescribed proforma, a synopsis containing particulars of proposed dissertation work within six months from the date of commencement of the course on or before the dates notified by the University. The synopsis shall be sent through the proper channel.
3. Such synopsis will be reviewed and the dissertation topic will be registered by the University. No changes in the dissertation topic or guide shall be made without prior approval of the University.
4. The dissertation should be written under the following headings:
    i. Introduction
    ii. Aims or Objectives of study
    iii. Review of Literature
    iv. Material and Methods
    v. Results
    vi. Discussion
    vii. Conclusion
    viii. Summary
    ix. References
    x. Tables
    xi. Annexure

5. The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other Checklists. It should be neatly typed in double line spacing on one side of paper (A4 size, 8.27" x 11.69") and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide, head of the department and head of the Institution.

6. Four copies of dissertation thus prepared shall be submitted to the University, six months before final examination on or before the dates notified by the University.

7. The dissertation shall be valued by examiners appointed by the University. Approval of dissertation work is an essential precondition for a candidate to appear in the University examination.

8. **Guide:** The academic qualification and teaching experience required for recognition by this University as a guide for dissertation work shall be as per Medical Council of India Minimum Qualifications for Teachers in Medical Institutions regulations. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as Lecturer or Assistant Professor gained after obtaining postgraduate degree, shall be recognised as postgraduate teachers.

   A Co-guide may be included provided the work requires substantial contribution from a sister department or from another medical institution recognised for teaching/training by the University / Medical Council of India. The co-guide shall be a recognised postgraduate teacher.

9. **Change of guide:** In the event of a registered guide leaving the college for any reason or in the event of death of guide, guide may be changed with prior permission from the university.

Monitoring of teaching and learning activities

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only also helps teachers to evaluate students, but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects.

The learning out comes to be assessed should included: (i) Personal Attitudes, (ii) Acquisition of Knowledge, (iii) Clinical and operative skills, (iv) Teaching skills and (v) Dissertation.

i) ***Personal Attitudes.*** The essential items are:

- Caring attitudes
- Initiative
- Organisational ability
- Potential to cope with stressful situations and undertake responsibility
- Trust worthiness and reliability
- To understand and communicate intelligibly with patients and others
- To behave in a manner which establishes professional relationships with patients and colleagues
- Ability to work in team
- A critical enquiring approach to the acquisition of knowledge

The methods used mainly consist of observation. It is appreciated that these items require a degree of subjective assessment by the guide, supervisors and peers.

ii) ***Acquisition of Knowledge*** : The methods used comprise of `Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors. Some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.

Journal Review Meeting (Journal Club): The ability to do literature search, in depth study, presentation skills, and use of audio- visual aids are to be assessed. The assessment is made by faculty members and peers attending the meeting using a checklist (see Model Checklist – I)

Seminars / Symposia: The topics should be assigned to the student well in advance to facilitate in depth study. The ability to do literature search, in depth study, presentation skills and use of audio- visual aids are to be assessed using a checklist (see Model Checklist-II)

Clinico-pathological conferences : This should be a multidisciplinary case study of an interesting case to train the candidate to solve diagnostic and therapeutic problems by using an analytical approach. The presenter(s) are to be assessed using a check list similar to that used for seminar.

iii) ***Clinical skills***

Day to Day work : Skills in outpatient and ward work should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills (see Model Checklist III).

Clinical meetings : Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list (see Model checklist IV).

Clinical and Procedural skills : The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book. (Table No.3)

(iv) ***Teaching skills :*** Candidates should be encouraged to teach undergraduate medical students and paramedical students, if any. This performance should be based on assessment by the faculty members of the department and from feedback from the undergraduate students (See Model checklist V)

(v) ***Dissertation in the Department :*** Periodic presentations are to be made in the department. Initially the topic selected is to be presented before submission to the University for registration, again before finalisation for critical evaluation and another before final submission of the completed work (See Model Checklist VI & VII)

(vi) *Work diary / Log Book* - Every candidate shall maintain a work diary and record his/her participation in the training programmes conducted by the department such as journal reviews, seminars, etc. Special mention may be made of the presentations by the candidate as well as details of clinical or laboratory procedures, if any

conducted by the candidate. The work diary shall be scrutinised and certified by the Head of the Department and Head of the Institution, and presented in the university practical/clinical examination.

(vii) *Periodic tests:* The departments may conduct three tests, two of them be annual tests, one at the end of first year and the other in the second year. The third test may be held three months before the final examination. The tests may include written papers, practicals / clinicals and viva voce.

(viii) Records: Records, log books and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University or MCI.

A postgraduate student of a postgraduate degree course in broad specialities/super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

Log book

The log book is a record of the important activities of the candidates during his training, Internal assessment should be based on the evaluation of the log book. Collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.

Format for the log book for the different activities is given in Tables 1,2 and 3, Copies may be made and used by the institutions.

Procedure for defaulters: Every department should have a committee to review such situations. The defaulting candidate is counselled by the guide and head of the department. In extreme cases of default the departmental committee may recommend that defaulting candidate be withheld from appearing the examination, if she/he fails to fulfill the requirements in spite of being given adequate chances to set himself or herself right.

Scheme of Examination

1. **Theory**

There shall be four question papers, each of three hours duration, carrying 100 marks. Each paper shall consist of 10 short essay questions carrying 10 marks each.

Paper I	= 100 Marks
Paper II	= 100 Marks
Paper III	= 100 Marks
Paper IV	= 100 Marks

Total	**400 Marks**

Details of distribution of topics for each paper will be as follows:

Paper I: Basic Sciences related to Ophthalmology, Refraction & Optics

Paper II: Clinical Ophthalmology

Paper III: Systemic Diseases in Relation to Ophthalmology

Paper IV: Recent Advances in Ophthalmology and Community Ophthalmology

Note: The distribution of chapters / topics shown against the papers are suggestive only.

2. Clinical Examination : 200 marks

1. Long case :
    a. Duration: 45 minutes – 1 hour
    b. Marks : 50 marks
    c. Type of case:
        i. Neuro ophthalmology
        ii. Proptosis
        iii. Sclerokeratouveitis
        iv. Uveitis with complications
        v. Lens induced complications
        vi. Glaucoma
2. Short cases:
    a. Two short cases of 25 marks each.
    b. Duration: 10 minutes – 15 minutes
3. Fundus cases:
    a. Two fundus cases
    b. Duration: 10 minutes – 15 minutes each
    c. Marks: 25 marks each
    d. 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:

   a. Two refraction cases of 25 marks each.

3. Viva voce: **100 marks**

a) 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 80 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

b) Pedagogy Exercise: (20 Marks)

A topic be given to each candidate before the clinical examination. Each will make a presentation on the topic for 8 to 10 minutes.

c) During the viva-voce discussion on dissertation may be held. No marks are assigned as it would have been evaluated separately.

4. Maximum marks

Maximum marks for M.S. Ophthalmology	Theory	Practical & Viva	Grand Total
	400	300 (Practical – 200 & Viva – 100)	700

MARKS QUALIFYING FOR A PASS

Obtaining a minimum of 40% marks in each theory paper and not less than 50% cumulatively in all the four papers for degree examination. Obtaining of 50% marks in Practical examination shall be mandatory for passing the examination as a whole in the degree examination.

Recommended Books and Journals

Recommended books

1. Duane's System of Ophthalmology
2. Jakobiec Series
3. Peyman's Series
4. Pathology gross specimens Duke-Elder's System of Ophthalmology
5. American Academy Series
6. Podos & Yanoff Series
7. Jack Kanski: Clinical Ophthalmology
8. Cornea :
    a. Smolin & Thoft
    b. Grayson
    c. Kaufman & Leibowitz
9. 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

10.Retinal disease:

a. Stephen Ryan's Retina

b. Ron Michel: Retinal Detachment

c. Steve Charles: Basic Vitrectomy

11.Ultra Sound:

a. Sandra Byrne & Ronald Green: Ophthalmic Ultrasound

12.Uvea:

a. Nussenblatt & Palestine

b. Smith & Nozik

13.Neuroophthalmology:

a. Walsh & Hoyt

14.Orbital diseases:

a. Rootman's diseases of the orbit

b. Jakobiec & Snow – Diseases of the orbit

15.Tumours:

a. Jerry Shields – Diagnosis and management of orbital tumours

b. Jerry Shields – Diagnosis and management of ocular tumours

16.Strabismus:

a. Gunter von Noorden

b. Mein &Trimble

17.Ophthalmic Pathology:

a. Yanoff & Fine
b. Zimmerman

18.Pharmacology:

a. Havener

19.Anatomy:

a. Wolff

b. Snell's

20.Physiology:

a. Adler’s Physiology of the Eye

21.Biochemistry:

a. Standard text books

22.Immunology:

a. Ocular immunology

23.Paediatric ophthalmology

a. Kenneth Wright

24.Refraction:

a. Duke Elder’s practice of refraction

b. Elkington &Frank

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

FORMAT OF MODEL CHECK LISTS

Check List -I.

MODEL CHECK-LIST FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS

Name of the Student: Name of the Faculty/Observer:

Date:

	Items for observation during presentation	**Poor 0**	**Below Average 1**	**Average 2**	**Good 3**	**Very Good 4**
1.	Article chosen was					
2.	Extent of understanding of scope & objectives of the paper by the candidate					
3.	Whether cross references have been consulted					
4.	Whether other relevant publications consulted					
5.	Ability to respond to questions on the paper / subject					
6.	Audio-Visual aids used					
7.	Ability to defend the paper					
8.	Clarity of presentation					
9.	Any other observation					
	Total Score					

Check List - II.

MODEL CHECK-LIST FOR EVALUATION OF SEMINAR PRESENTATIONS

Name of the Student: Name of the Faculty/Observer:

Date:

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Whether other relevant publications consulted					
2.	Whether cross references have been consulted					
3.	Completeness of Preparation					
4.	Clarity of Presentation					
5.	Understanding of subject					
6.	Ability to answer questions					
7.	Time scheduling					
8.	Appropriate use of Audio-Visual aids					
9.	Overall Performance					
10.	Any other observation					
	Total Score					

Check List - III

MODEL CHECK LIST FOR EVALUATION OF CLINICAL WORK IN WARD / OPD

(To be completed once a month by respective Unit Heads including posting in other departments)

Name of the Student: Name of the Unit Head:

Date:

Sl. No.	Points to be considered:	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Regularity of attendance					
2.	Punctuality					
3.	Interaction with colleagues and supportive staff					
4.	Maintenance of case records					
5.	Presentation of cases during rounds					
6.	Investigations work up					
7.	Bedside manners					
8.	Rapport with patients					
9.	Counseling patient's relatives for blood donation or Postmortem and Case follow up.					
10.	Over all quality of Ward work					
	Total Score					

Check List - IV
EVALUATION FORM FOR CLINICAL PRESENTATION

Name of the Student: Name of the Faculty:
Date:

Sl. No.	Points to be considered	Poor 0	Below Average 1	Average 2	Above Average 3	Very Good 4
1.	Completeness of history					
2.	Whether all relevant points elicited					
3.	Clarity of Presentation					
4.	Logical order					
5.	Mentioned all positive and negative points of importance					
6.	Accuracy of general physical examination					
7.	Whether all physical signs elicited correctly					
8.	Whether any major signs missed or misinterpreted					
9.	Diagnosis: Whether it follows follows logically from history and findings					
10	Investigations required ▪ Complete list					
	▪ Relevant order					
	▪ Interpretation of investigations					
11.	Ability to react to questioning Whether it follows logically from history and findings					
12.	Ability to defend diagnosis					
13.	Ability to justify differential diagnosis					
14.	Others					
	Grand Total					

Check List – V

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

Sl. No.		Strong Point	Weak Point
1.	Communication of the purpose of the talk		
2.	Evokes audience interest in the subject		
3.	The introduction		
4.	The sequence of ideas		
5.	The use of practical examples and/or illustrations		
6.	Speaking style (enjoyable, monotonous, etc., specify)		
7.	Attempts audience participation		
8.	Summary of the main points at the end		
9.	Asks questions		
10.	Answers questions asked by the audience		
11.	Rapport of speaker with his audience		
12.	Effectiveness of the talk		
13.	Uses AV aids appropriately		

Check list VI

MODEL CHECK LIST FOR DISSERTATION PRESENTATION

Name: Faculty/observer:

Date:

Sl. No.	Points to be considered divine	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Interest shown in selecting a topic					
2.	Appropriate review of literature					
3.	Discussion with guide & other faculty					
4.	Quality of protocol					
5.	Preparation of proforma					

Check list-VII

CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE / CO-GUIDE

Name of the Student: Name of the Faculty/Observer:

Date:

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Periodic consultation with guide/co-guide					
2.	Regular collection of case material					
3.	Depth of analysis / discussion					
4.	Departmental presentation of findings					
5.	Quality of final output					
6.	Others					
	Total Score					

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

Model Overall Assessment Sheet

Name of the College: **Academic Year:**

Sl. No	Faculty Member & Others	Name of Student and Mean Score									
		A	B	C	D	E	F	G	H	I	J
1											
2											
3											
4											
5											
Total Score											

Note: Use separate sheet for each year.

MEDICAL ETHICS

Sensitisation and Practice

Introduction

There is now a shift from the traditional individual patient, doctor relationship, and medical care. With the advances in science and technology and the needs of patient, their families and the community, there is an increased concern with the health of society. There is a shift to greater accountability to the society. Doctors and health professionals are confronted with many ethical problems. It is, therefore necessary to be prepared to deal with these problems. To accomplish the Goal , Objective develop human values it is urged that ***ethical sensitisation*** be achieved by lectures or discussion on ethical issues, clinical case discussion of cases with an important ethical component and by including ethical aspects in discussion in all case presentation, bedside rounds and academic postgraduate programmes.

Course Contents

1. *Introduction to Medical Ethics*

   What is Ethics

   What are values and norms

   Relationship between being ethical and human fulfillment

   How to form a value system in one's personal and professional life

   Heteronomous Ethics and Autonomous Ethics

   Freedom and personal Responsibility

2. *Definition of Medical Ethics*

   Difference between medical ethics and bio-ethics

   Major Principles of Medical Ethics 0

Beneficence	=	fraternity
Justice	=	equality
Self determination (autonomy)	=	liberty

3. *Perspective of Medical Ethics*

The Hippocratic oath

The Declaration of Helsinki

The WHO Declaration of Geneva

International code of Medical Ethics (1993)

Medical Council of India Code of Ethics

4. *Ethics of the Individual*

The patient as a person

The Right to be respected

Truth and Confidentiality

The autonomy of decision

The concept of disease, health and healing

The Right to health

Ethics of Behaviour modification

The Physician – Patient relationship

Organ donation

5. *The Ethics of Human life*

What is human life

Criteria for distinguishing the human and the non-human

Reasons for respecting human life

The beginning of human life

Conception, contraception

Abortion

Prenatal sex-determination

In vitro fertilization (IVF), Artificial Insemination by Husband (AIH)

Artificial Insemination by Donor (AID),

Surrogate motherhood, Semen Intrafallopian Transfer (SIFT),

Gamete Intrafallopian Transfer (GIFT), Zygote Intrafallopian Transfer (ZIFT),

Genetic Engineering

6. *The Family and Society in Medical Ethics*

The Ethics of human sexuality

Family Planning perspectives

Prolongation of life

Advanced life directives – The Living Will

Euthanasia

Cancer and Terminal Care

7. *Profession Ethics*

Code of conduct

Contract and confidentiality

Charging of fees, Fee-splitting

Prescription of drugs

Over-investigating the patient

Low – Cost drugs, vitamins and tonics

Allocation of resources in health cares

Malpractice and Negligence

8. *Research Ethics*

Animal and experimental research / humanness

Human experimentation

Human volunteer research – Informed Consent

Drug trials

9. *Ethical workshop of cases*

Gathering all scientific factors

Gathering all human factors

Gathering all value factors

Identifying areas of value – conflict, Setting of priorities,

Working out criteria towards decisions

Recommended Reading

Francis C.M., **Medical Ethics**, 1 Ed, 1993, Jaypee Brothers, New Delhi, p 189.