

**Pravara Institute of Medical Sciences  
(Deemed University)**

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**Syllabus  
M.S. (Ophthalmology)**

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## P. G. Curriculum for M.S. Degree in Ophthalmology

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The infrastructure and faculty of the department of Ophthalmology will be as per MCI regulation.

## 1. Goals

To produce competent Ophthalmologists who

1. Should have mastered most of the competencies pertaining to Ophthalmology that are required to be practiced ethically.
2. Should be aware of the advances and recent developments in Ophthalmology.
3. Should have a spirit of scientific inquiry and should be oriented to the principles of research methodology.
4. Should recognize the ocular health needs of the community and carry out professional obligations in keeping with the principles of National Health Policies.
5. Should have acquired skills in educating medical and paramedical professionals.

## 2. Objectives

At the end of the M.S. Degree course, the student should be able:

1. To take detailed history, perform complete physical examination including anterior and posterior segment of the eye and to diagnose and manage majority of the conditions in Ophthalmology on the basis of clinical assessment and appropriate investigations.
2. To carryout common surgical procedures and manage ocular emergencies efficiently.
3. To plan and advise measures for the prevention and rehabilitation of patients having ocular problems.
4. To demonstrate skills in documentation of individual case details.
5. To develop skills as a self directed learner and to recognize continuing education needs.
6. To demonstrate empathy and human approach towards patients and their families.

### **3. Major Components**

1. Theoretical Knowledge
2. Clinical and Surgical skills
3. Thesis skills
4. Communication Skills
5. Research Methodology

### **4. Syllabus**

#### **4.1. Theory.**

#### **1. Anatomy and Physiology**

Embryology and Anatomy

Physiology of the Eye

The Physiology of Vision

The Neurology of Vision

#### **2. Ophthalmic Optics**

Elementary Optics

Elementary Physiological Optics

Refraction

Refractive Errors of the Eye

#### **3. Ocular Examination Techniques and Ocular Therapeutics**

Ocular Symptomatology

Assessment of Visual Function

Examination of the Anterior Segment

Examination of the Posterior Segment and Orbit

Ocular Therapeutics including newer drugs

Ocular Microbiology

#### 4. Diseases of the Eye

Diseases of the Conjunctiva

Diseases of the Cornea

Diseases of the Sclera

Diseases of the Uveal Tract

The Lens

The Glaucomas

Diseases of the Retina

Diseases of the Vitreous

Diseases of the Optic Nerve

Intraocular Tumours

Injuries to the Eye

#### 5. Disorders of Motility

Anatomy and Physiology of the Motor Mechanism

Comitant Strabismus

Incomitant Strabismus

#### 6. Diseases of the Adnexa

Diseases of the Lids

Diseases of the Lacrimal Apparatus

Diseases of the Orbit

#### 7. Systemic Ophthalmology

Diseases of the Nervous System with Ocular Manifestations

Ocular Manifestations of Systemic Disorders

Systemic drugs – Effects on eye

## 8. Community and Preventive Ophthalmology

The Causes and Prevention of Blindness

Eye Camps

Eye Banking

Genetics in Ophthalmology

## 9. Surgical Instruments in Ophthalmology

## 10. Local Anaesthesia in Ophthalmology

## 11. Lasers in Ophthalmology

## 12. IOL Designs and Materials

### 4.2 Practical

#### Minor Procedures

Thorough ocular examination.

Removal of Corneal/ forniceal foreign body.

Syringing and probing

Pterygium excision

Chalazion excision

I & D for Adnexal infections (Stye)

Epilation

Corneal Scraping

Conjunctival swab

Anterior chamber tap

Subconjunctival injection

## Major Procedures

Cataract Surgery with IOL implantation

Glaucoma surgery

Lid surgeries including entropion, ectropion & ptosis

Ocular trauma management

Lacrimal sac Surgery

pterygium surgery

Tarsorrhaphy

Orbital surgeries including enucleation, Evisceration (and Exenteration)

Corneal surgery including transplant

Squint Surgery and oculoplasty

vitreo retinal surgery

## Surgical Training

All the Post Graduate students should be exposed to Wet Lab training

## 5. Teaching Program

### 5.1. General Principles

Learning in postgraduate program should essentially be self-directed and primarily emanating from clinical and academic work. Acquisition of practical competencies being the keystone of postgraduate medical education, postgraduate training is skill oriented. The formal sessions should merely be meant to supplement this core effort.

### 5.2 Teaching Sessions

Seminar presentations including detailed topics covering all aspects of ophthalmology shall be taken up by the residents.

Journal clubs shall be held for having wider view of the subject and latest research work and papers discussed in routine.

Case discussions should be mandatory for PG students so as to be expert in clinical examination, reach a diagnosis and then plan for appropriate and required management.

### 5.3. Teaching Schedule

In addition to bedside teaching rounds, in the department there should be daily hourly sessions of formal teaching per week. The teaching schedule is as follows:

1. Seminar Presentation - Once a week
2. Journal Club - Once a week
3. PG Case Discussion - Once a week

All sessions shall be attended by all the faculty members except those on emergency duties. All Junior and Senior Residents are supposed to attend the session.

All teaching sessions should be assessed by all consultants at the end of session and log books signed.

Attendance of Residents at various sessions has to be at least 80%.

## 6. Posting

All PG students shall be posted in OPD, ward and OT as per their units.

PG students should be posted in emergency to deal with any ocular emergency in casualty as well as posting at PHCs on rotational basis

Effort should be made to expose PG students to the latest techniques even though they may have to be sent for sometime to the centers performing and using latest instruments or surgeries.

## 7. Assessment

All the PG residents should be assessed daily for their academic activities and also periodically.

### 7.1. General Principles

The assessment is valid, objective and reliable.

It covers cognitive, psychomotor and affective domains.



Formative, continuing and summative (final) assessment is also conducted in theory as well as practical

## 7.2. Formative Assessment

End-of-term assessment is held at the end of each semester (6 months). Formative assessment will not count towards pass/fail at the end of the program, but will provide feedback to the candidate.

## 7.3. Internal assessment

The performance of the Postgraduate student during the training period should be monitored throughout the course and duly recorded in the logbooks as evidence of the ability and daily work.

End of term (6 months) theory examination: Written test conducted at end of each term.

End of term (6 months) practical/oral examination: Practical exam and viva examination at end of each term.

OSCE – Introduction of OSCE for internal assessment

## 7.4. Summative Assessment

Ratio of marks in theory and practical's will be equal.

The pass percentage will be 50%.

Candidates will have to pass theory and practical examinations separately.

### A. Theory examination

Total:-400 marks

Four papers of 100 marks each

Paper I:- Basics Medical Sciences related to Ophthalmology and Optics.

Paper II:-Ophthalmic Medicine and Surgery

Paper III:- Ophthalmology related to General Medicine & General Surgery

Paper IV:- Recent Advances in Ophthalmology

### Scheme of theory examination for M.S.Ophthalmology

Q.No.1	Long Answer Question	20 marks
Q.No.2	Long Answer Question	20 marks
Q.No.3	Long Answer Question	20 marks
Q.No.4	Short Answer Question (10 marks each x 4)	40 marks
	<b>Total</b>	<b>100 Marks</b>

### B. Practical examination

#### Scheme of practical examination for M.S. Ophthalmology

M.S. Degree in Ophthalmology		
	Long Case- 1	100 Marks
	Short Case – 2 of 50 marks each	100 Marks
	<b>Viva Voce – 200 marks</b>	
	1. Instruments	30 Marks
	2. Drug	30 Marks
	3. Refraction	30 Marks
	4.X-ray	30 Marks
	5. Specimen	30 Marks
	6. Slides	30 Marks
	7.Viva	20 Marks
	<b>Total</b>	<b>400 Marks</b>

## 8. Job Responsibilities

During first year the resident will work under direct supervision of the second or third year resident/senior resident and consultant on call. She/he will be responsible for taking detailed history, examination of patients as per the file record and send appropriate investigations as advised by seniors. Initially all procedures are to be observed and then done under supervision of seniors and during first year.

In the second semester of first year, the resident is posted in specialty clinics.

In second year, resident is also encouraged to make independent decisions in management of cases. She/he is also involved in teaching of undergraduate students.

Residents on emergency duty attend bedside calls in various wards, ICU and emergency.

In second year Junior Residents should be performing surgeries stepwise and then independently under the guidance of Senior Residents or Consultants.

In third / final year should examine OPD patients independently and manage them after taking final opinion of consultant or faculty. Final year residents should be performing surgeries independently under supervision of consultants.

Second and Third year resident should orient and guide the nursing students in Ward and O.T for newer ophthalmic procedures.

Residents should participate in various national programs and community work like camps, screening programs for diabetic retinopathy, Glaucoma, Eye bank Activities, refractive errors in School children.

## 9. Suggested Books and Journals

### 9.1 Text Books

Parson's Diseases of the Eye

Clinical Ophthalmology Kanski.J.J

Ophthalmology Yanoff Duker

American Academic of Ophthalmology

Clinical Ophthalmology - Jacobik

Retina Stephen J Ryan

Systems of Ophthalmology Duke Elder

Principles and Practices of Ophthalmology Peyman Sanders and Goldberg.

Diagnosis and Therapy of Glaucoma Becker and Shaffer

Glaucoma Shields

Glaucoma Chandler and Grant

Refraction Duke Elder

Anatomy and Physiology of Eye A.K.Khurana

Anatomy and Physiology of Eye Wolffs

Practical Orthoptics in treatment of Squint Keith Lyall

Mastering Phacoemulsification Paul S Koch

Cataract Surgery and its complication Jaffe

Cornea Smolin

Automated Static Perimetry Anderson and Patella

Stallard's Eye Surgery Stallards

## 9.2 Journals

American Journal of Ophthalmology

British Journal of Ophthalmology

Archives in Ophthalmology

Ophthalmology

Indian Journal of Ophthalmology