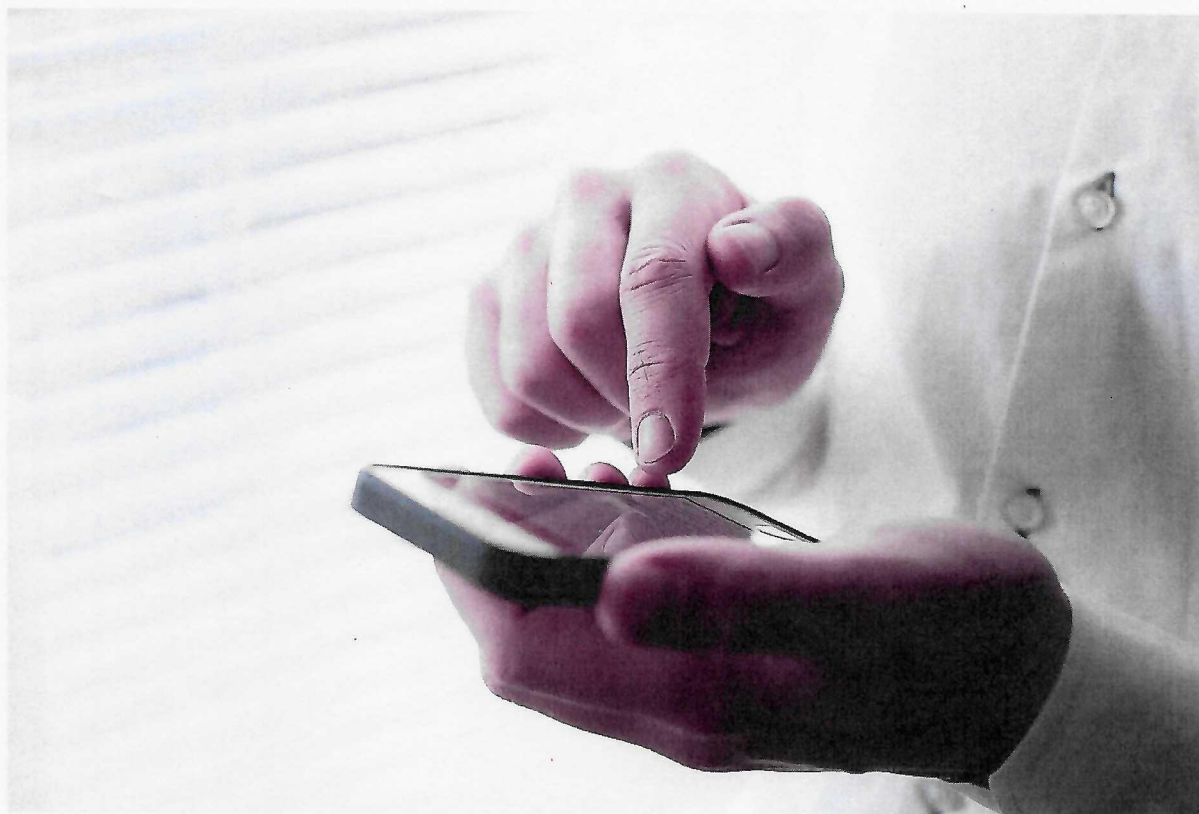


Syllabus for MS (Ophthalmology) Programme



Guru Gobind Singh Indraprastha University

A State University established by the Govt. of NCT of Delhi

University School of Medicine and Allied Health Sciences

SYLLABUS OF MS Ophthalmology

Programme Objective

A candidate upon successfully qualifying in the M.S. (Ophthalmology) examinations should be able to:

- a) Offer to the community, the current quality of 'standard of care' in ophthalmic diagnosis well as therapeutics, medical or surgical, in most of the common and easily managed situations at the level of health service.
- b) Periodically self assess his or her performance and keep abreast with ongoing advances in the field and apply the same in his/her practice.
- c) Be aware of his or her own limitations to the application of the specialty in situations which warrant referral to more qualified centers or individuals.
- d) Apply research and epidemiological methods during his/her practice. The candidate shall be able to present or publish work done by him/her.
- e) Contribute as an individual / group towards the fulfillment of national objectives with regard to prevention of blindness.
- f) 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.

Specific Learning Objectives

1. The clinical postgraduate training programmes are intended at developing in a student a blend of qualities of a clinical specialist, a teacher and a researcher and. They are organized such that a postgraduate should possess the following qualities, knowledge and skills.
2. He should possess basic knowledge of the structure, function and development of the human body as related to ophthalmology, of the factors which may disturb these mechanisms of such disturbances and the disorders of structure and function which may result.
3. He should be able to practice and handle most day to day problems independently in ophthalmology. He should recognize the limitations of his own clinical knowledge and know when to seek further help.
4. He should understand the effect of environment on health and be familiar with the epidemiology of at least the more common diseases in the field of ophthalmology. He should be able to integrate the preventive and promotive methods with the curative and rehabilitative measures in the treatment of disease.

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5. He should be ophthalmology at the door step of community. He should be familiar with common eye problems occurring in rural areas and be able to deal with them effectively. He should also be made aware of Mobile Ophthalmic Unit and its working and components.
6. He should be familiar with the current developments in Ophthalmic Sciences.
7. He should be able to plan educational programmes in ophthalmology in association with his senior colleagues and be familiar with the modern methods of teaching and evaluation.
8. He should be able to identify a problem for research, of a nature involving epidemiological studies or combination thereof, clearly state his objective, plan a rational approach to its solution and execute it and critically evaluate his data in the light of existing knowledge.
9. He should know that conclusions should be reached by logical deduction and he should be able to assess evidence both as to its reliability and its relevance.

Post Graduate Training

1. Teaching

Theoretical: The theoretical knowledge is imparted to the candidate through distinct courses of lecture demonstrations and symposia. The students are exposed to recent advances through discussions in journal clubs symposia. These are considered necessary in view of inadequate exposure to ophthalmology in the undergraduate curriculum. Didactic teaching in clinical applied basic and para clinical sciences :Knowledge in applied, basic and para clinical and clinical sciences may be imparted by the members of the staff in respective disciplines or by clinicians themselves by conducting didactic courses (Lectures & Demonstrations).

The residents are imparted training in teaching in several ways.

2. Group Discussion

The junior residents may present the symposium to their senior postgraduates where it is fully discussed before finally being discussed in front of the faculty or senior eye specialists. A free and fair discussion is encouraged. These discussions enable the residents to prepare for a general discussion in the class.

3. Symposia

The residents of 3rd and 4th semester should be exposed to 14 symposia in each over a 1 year period to cover the entire.

4. Case Discussion

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5. Journal clubs

Journal are reviewed in a particular covering all articles in that subject over a 6 months period and are discussed by the resident under the following headings.

- 1) Aim 2) Methods 3) Observations
- 4) Discussion and 5) Conclusions

The resident to whom the journal is allotted presents the journal summaries to the senior postgraduates. They are expected to show their understanding of the aspect covered in the article and clarify any of the points raised in the article, offer criticisms and evaluate the article in the light of known literature.

6. **Clinical Ophthalmology:** The training should be given in wards, out-patients departments, speciality clinics and operation theatres.
7. **Out Patients:** For the first six months of the training programme residents may be attached to a faculty member to be able to pick up methods of history taking and ocular examination in ophthalmic practice. During this period the resident may also be oriented to the common ophthalmic problems. After 6 months, the clinical resident may work independently, where he receives new and old cases including refractions and prescribes for them. The residents are attached to a senior resident and faculty member whom they can consult in case of difficulty.
8. **Wards:** Each resident may be allotted 3 to 5 beds in the in-patient section depending upon the total bed capacity and the number of the postgraduates. The beds of each resident are approximately divided into two halves-general ophthalmic cases and cases. The whole concept is to provide the resident increasing opportunity to work with increasing responsibility according to seniority. A detailed history and case record is to be maintained by the resident.

9. Speciality clinics

Operations: The resident is provided with an opportunity to perform operations both extraocular and intra-ocular with the assistance of the senior residents and / or under the direct supervision of a faculty member. He is provided with an opportunity to learn special and complicated operations by assisting the Senior Resident or the Senior Surgeon in operations of cases of the specialty and be responsible for the Post-operative care of these cases.

A phased programme may be chalked out. In the first phase the resident is given training in regional anesthetic block preparations of cases for operation and pre-medication. In the next phase, the resident assists the operating surgeon during the operations. In the third phase, the resident operates independently assisted by senior resident, even a faculty member.

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He is required to be proficient in some operations and show familiarity with others.

10. PRACTICALS IN Ocular Histopathology

a. General Pathology

The training may be given initially in general pathology to give the residents a revision on the basic general pathology and lesions in various other organs.

b. Ocular Pathology

A set of ophthalmic slides fully documented may be provided to each resident for study. The residents may see the slides, write their descriptions and compare the same with one given in the documentation. This gives them a basic knowledge of known pathological lesions.

The residents may be provided with fully stained slides of the tissues received in ocular pathology section from the clinical material along with relevant clinical data. The residents may write out a detailed report on the pathological findings of each part of the eye ball and discuss the diagnosis and differential diagnosis on the basis of the information provided and collected by examining the slides.

The following overall objectives are expected to be achieved by the end of 3 years of instructions and residential training programme. The details are listed subject and clinical assignment wise. At the end of this training programme the students should be able to handle:-

1. **Basic medical sciences:** Attain understanding of the structure and function of the eye and its parts in health and disease.

Attain understanding and application of knowledge of the structure and function of the part of Central Nervous System and other parts of the body with influence or control the structure and function of the eye.

Attain understanding of and develop competence in executing common general laboratory procedures employed in diagnosis and research in Ophthalmology.

2. **Clinical ophthalmology:** Given adequate opportunity to work on the basis of graded responsibilities in outpatients, in patient an operation theaters on a rational basis in the clinical sections from the day of entry to the completion of the training programme, the students should be able to:

Acquire scientific and rational approach to the diagnosis of ophthalmic cases presented.

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Acquire understanding of and develop inquisitiveness to investigate to establish cause and effect of the disease.

To manage and treat all types of ophthalmic cases.

To competently handle and execute safely all routine surgical procedure on lens glaucoma, lid, sac, adnexa, retina and muscle anomalies.

To be familiar with micro-surgery and special surgical techniques.

To demonstrate the knowledge of the pharmacological (including toxic) aspects of drugs used in ophthalmic practice and drugs commonly used in general diseases affecting the eyes.

3. **Refraction:** Acquire competence in assessment of refractive errors and prescription of glasses for all types of refraction problems.

Acquire basic knowledge of manufacture and fitting of glasses and competence of judging the accuracy and defects of the dispensed glasses.

4. **Ophthalmic super-specialties:** Given an opportunity to work on a rotational basis in various special clinics of sub-specialities of ophthalmology, if possible.

The student should be able to:

Examine, diagnose and demonstrate understanding of management of the problems of neuro-ophthalmology and refer appropriate cases to neurology and neuro-surgery.

Examine, diagnose and demonstrate understanding of management of (medical and surgical) complicated problems in the field of (a) lens, (b) uvea, (c) cornea including transplant (d) retina including retinal detachment (e) squint (f) ophthalmoplasty and tumors of eye (g) glaucoma (h) plastic surgery of eye and (I) genetic problems in ophthalmology.

To demonstrate understanding of the manufacture, and competence in prescription and dispensing of contact lenses and ocular prosthesis.

5. **Ophthalmic pathological sciences:** Given the relevant clinical, operative and radiological data the student should be able to identify and describe the major histomorphology alterations in the tissues received in the section of ocular pathology.

Be able to interpret the diagnosis in correlation with the clinical data of routine materials received in of the cases.

Be able to demonstrate an understanding of pathophysiologic processes associated with such lesions.

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6. **Community Ophthalmology:** Eye camps may be conducted where residents are posted for imparting training to the clinical residents according to a set methodology. The community and school surveys may also be conducted by the residents.

The residents are given an opportunity to participate in surveys, eye camps and rehabilitation teams, and

They should be able to guide rehabilitation workers in the organization and training of the blinds in art of daily living and in the vocational training of the blinds leading to gainful employment.

7. **Research:** Recognize a research problem.

State the objectives in terms of what is expected to be achieved in the end.

Plan a rational approach with appropriate controls with full awareness of the statistical validity of the size of the material.

Spell out the methodology and carry out most of the technical procedures required for the study.

Accurately and objectively record on systematic lines results and observation made.

Analyze the data with the aid of an appropriate statistical analysis.

Interpret the observations in the light of existing knowledge and highlight in what ways the study has advanced existing knowledge on the object and what further remains to be done.

Write a thesis in accordance with the prescribed instructions (Appendix VIII)

Write at least one scientific paper as expected of International Standards from the material of this thesis.

Thesis, to be submitted by each candidate at least 6 months before the date of commencement of the theory examination.

PAPER (Theory)

- 1 Basic Sciences related to Ophthalmology
- 2 Clinical Ophthalmology should include systemic disease in relation to eye.
- 3 Principles and Practice of Surgery of Eye and related topics
- 4 Recent Advances in Ophthalmology

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Dr. P. K. Malik

Practicals

Practical should consist of long case, short case instrument viva X-rays, specimens and demonstration of use of appliance and specialized diagnostic techniques.

Course contents

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

The Basic Sciences:

- ocular Pharmacology
 - Lasers in ophthalmology
 - Instruments in relation to ophthalmic surgery
1. Orbital and ocular anatomy
 - i. Gross anatomy
 - ii. Histology
 - iii. Embryology
 2. Ocular Physiology
 3. Ocular pathology:

Gross pathology, Histopathology, basics of general pathology
 4. Biochemistry

General biochemistry, Biochemistry applicable to ocular function
 5. Microbiology

General Microbiology, Specific microbiology applicable to the eye
 6. Immunology with particular reference to ocular immunology

II. Optics

- a. Basic physics of optics
- b. Applied ophthalmic optics
- c. Applied optics including optical devices
- d. Disorders of Refraction

Dr. H. K. Desai
Dean

Dr. P. K. Mehta

III. Clinical Ophthalmology

- i. Operation Theater and ophthalmic practices.
- ii. Ocular Trauma and ocular emergency management.
- iii. Disorders of the lids
- iv. Disorders of the lacrimal system
- v. Disorders of the Conjunctiva
- vi. Disorder of the Sclera
- vii. Disorders of the cornea
- viii. Disorders of the Uvea Tract
- ix. Disorders of the Lens
- x. Disorders of the Retina
- xi. Disorders of the Optic Nerve & Visual Pathway
- xii. Disorders of the Orbit
- xiii. Glaucoma
- xiv. Neuro ophthalmology
- xv. Pediatric ophthalmology
- xvi. Ocular involvement in systemic disease
- xvii. Immune ocular disorders
- xviii. Strabismus & Amblyopic

RECOMMENDED TEXT BOOKS:

Subject Headings

- I) Parson's Text book of ophthalmology
- II) Laser in Ophthalmology: Principles and Techniques by: Pattnaik (Jaeype Brothers)
- III) Low Vision Aids by: Chaudhary (Jaeype Brothers)
- IV) Jaypee's Video Atlas of Ophthalmology Surgery by: Garg

Dr. H. C. Verma

Dr. P. R. Malik

Chment

Steve Charles Basic Vitrectomy

Ultra Sound

Sandra Byrne & Ronald Green Ophthalmic Ultrasound

Uvea

Nussenblatt & Palestine

Smith & Nozik

Neurophthalmology

Walsh & Hoyt

Orbital disease:

Rootman's diseases of the orbit

Jakobiec & Snow – Diseases of the orbit

Tumours

Jerry shields – Diagnosis and management of orbital tumours

Jerry Shields – diagnosis and management of ocular tumours

Strabismus

Gunter von Noorden

Mein & Trimble

Ophthalmic Pathology

Yanoff & Fine

Zimmerman

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Pharmacology

Havener

Anatomy

Wolff

Snell's

Physiology

Adler's Physiology of the Eye

Biochemistry

Standard text books

Immunology

Ocular Immunology

Paediatric Ophthalmology

Keneeth Wright

Refraction

Duke Elder's practice of refraction

Elkington and Frank

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JOURNALS

- Delhi Ophthalmic society Journal
- INDIAN Journal of Ophthalmology
- American Journal of Ophthalmology
- Ophthalmology
- Archives of Ophthalmology
- Survey of Ophthalmology
- International Ophthalmology Clinics
- British Journal of Ophthalmology
- Cornea
- Retina
- J cataract Refract Surg.
- Ophthalmic Surg and Lasers

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