

Faculty of Medicine



JSS Academy of Higher Education & Research

(Deemed to be University)

Accredited "A" Grade by NAAC

Sri Shivarathreshwara Nagar, Mysuru – 570 015

Regulation & Syllabus

Post Graduate Degree & Diploma Programs
OPHTHALMOLOGY 2016

MS/PG Dip

Regulation & Syllabus

MS OPHTHALMOLOGY

2016



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**REGULATION AND SYLLABUS FOR
POST GRADUATE DEGREE PROGRAMS 2016**

**MS & DIPLOMA
OPHTHALMOLOGY**

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CHAPTER I

REGULATION FOR POST GRADUATE DEGREE AND DIPLOMA COURSES

1. Branch of study

Post graduate degree courses

Doctor of Medicine

- a) Anaesthesiology
- b) Anatomy
- c) Biochemistry
- d) Community medicine
- e) Dermatology, venereology and leprosy
- f) Emergency medicine
- g) Forensic medicine
- h) General medicine
- i) Hospital administration
- j) Microbiology
- k) Pathology
- l) Paediatrics
- m) Pharmacology
- n) Physiology
- o) Psychiatry
- p) Tuberculosis and Respiratory Medicine
- q) Radio Diagnosis

Master of Surgery

- a) General surgery
- b) Obstetrics and gynaecology
- c) Ophthalmology
- d) Orthopaedics
- e) Otorhinolaryngology

Post graduate diploma courses

- a) Anaesthesiology (DA)
- b) Child Health (DCH)
- c) Clinical Pathology (DCP)
- d) Dermatology, Venereology & Leprosy (DDVL)
- e) Medical Radio Diagnosis (DMRD)
- f) Obstetrics & Gynaecology (DGO)
- g) Ophthalmology (DO)
- h) Orthopaedics (D Ortho)
- i) Otolaryngology (DLO)
- j) Psychiatric Medicine (DPM)

2. Eligibility for admission

MD / MS Degree and Diploma courses: A candidate who has passed final year MBBS examination after pursuing a study in a medical college recognized by the Medical Council of India and has completed one year compulsory rotating internship in a teaching institution or other institution recognized by the Medical Council of India, and has obtained permanent registration of any State Medical Council, shall be eligible for admission.

3. Admission

A candidate desirous of admission to Post Graduate Medical Programmes MD/ MS / PG Diploma Courses is required to complete the application form and submit to the Deemed to be University along with prescribed documents on or before the scheduled date. Eligibility criteria, application form and details of documents to be submitted are available in the Deemed to be University website: www.jssuni.edu.in.

4. Registration

A candidate who has been admitted to postgraduate course shall register in the Deemed to be University within a month of admission after paying the registration fee.

5. Intake of students

The intake of students to each course shall be in accordance with the MCI.

6. Duration of study

MD, MS Degree Courses: The course of study shall be 3 completed years including the period of examination.

Provided that in case of students having a recognized 2 years postgraduate diploma course in the same subject, the period of training including the period of examination shall be 2 years.

Diploma courses: The course of study shall be 2 completed years including the examination period.

7. Methodology of training

The training of postgraduate for degree/diploma shall be residency pattern, with graded responsibilities in the management and treatment of patients entrusted to his/her care. The participation of the students in all facets of educational process is essential. Every candidate should take part in seminars, group discussions, grand rounds, case demonstration, clinics, journal review meetings, CPC and clinical meetings. Every candidate shall participate in the teaching and training programme of undergraduate students. Training should include involvement in laboratory and experimental work, and research studies. Basic medical sciences students should be posted to allied and relevant clinical departments or institutions. Similarly, clinical subjects' students should be posted to basic medical sciences and allied specialty departments or institutions.

8. Attendance, progress and conduct

A candidate pursuing degree/diploma course, shall work in the concerned department of the institution for the full period as full time student. No candidate is permitted to run a clinic/laboratory/nursing home while studying postgraduate course, nor can he/she work in a nursing home or other hospitals/

clinic/laboratory while studying postgraduate course.

Each year shall be taken as a unit for the purpose of calculating attendance.

Every student shall attend symposia, seminars, conferences, journal review meetings, grand rounds, CPC, case presentation, clinics and lectures during each year as prescribed by the department and not absent himself / herself from work without valid reasons.

Every candidate is required to attend a minimum of 80% of the training during each academic year of the post graduate course. Provided, further, leave of any kind shall not be counted as part of academic term without prejudice to minimum 80% attendance of training period every year.

Any student who fails to complete the course in the manner stated above shall not be permitted to appear for the Deemed to be University Examinations.

9. Monitoring progress of study

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 shall 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 scrutinized and certified by the Head of the Department and Head of the Institution, and presented in the Deemed to be University practical/clinical examination.

Periodic tests: In case of degree courses of three years duration (MD/MS), the concerned departments shall conduct three tests, two of them be annual tests, one at the end of first year and the other at the end of the second year. The third test shall be held three months before the final examination. The tests shall include written papers, practical / clinical and viva voce. Records and marks obtained in such tests shall be maintained by the Head of the Department and sent to the Deemed to be University, when called for.

In case of diploma courses of two years duration, the concerned departments shall conduct two tests, one of them at the end of first year and the other in the second year, three months before the final examination. The tests shall include written papers, practical / clinical and viva voce.

Records: Records and marks obtained in tests shall be maintained by the Head of the Department and shall be made available to the Deemed to be University or MCI.

10. Dissertation

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

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, and comparison of results and drawing conclusions.

Every candidate shall submit to the Controller of Examinations of the Deemed to be 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 Deemed to be University. The synopsis shall be sent through proper channel.

Such synopsis will be reviewed and the dissertation topic will be registered by the Deemed to be University. No change in the dissertation topic or guide shall be made without prior approval of the Deemed to be University.

The dissertation should be written under the following headings:

- a) Introduction
- b) Aims or Objectives of study
- c) Review of Literature
- d) Material and Methods
- e) Results
- f) Discussion
- g) Conclusion
- h) Summary
- i) References
- j) Tables
- k) Annexure
- l) Proof of Paper presentation and publication

The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. 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.

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

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

Guide: The academic qualification and teaching experience required for recognition as a guide for dissertation work is as per MCI Minimum Qualifications for Teachers in Postgraduate Medical Education Regulations, 2000. Teachers in a medical college/institution having a total of eight years teaching experience out of which at least five years teaching experience as Assistant Professor gained after obtaining post graduate degree shall be recognised as post graduate teachers.

Co Guide: 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 JSS Deemed to be University / Medical Council of India.

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 Deemed to be University.

A postgraduate student is 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.

11. Schedule of examination

The examination for MD / MS courses shall be held at the end of three academic years (six academic terms). The examination for the diploma courses shall be held at the end of two academic years.

For students who have already passed Post Graduate Diploma and appearing for MD examination, the examination shall be conducted after two academic years including submission of dissertation. The Deemed to be University shall conduct two examinations in a year at an interval of four to six months between the two examinations. Not more than two examinations shall be conducted in an academic year.

12. Scheme of examination

MD/MS

Dissertation: Every candidate shall carry out work and submit a dissertation as indicated in Sl. No. 10. Acceptance of dissertation shall be a precondition for the candidate to appear for the final examination.

Written Examination (Theory): A written examination shall consist of four question papers, each of three hours duration. Each paper shall carry 100 marks. Out of the four papers, the 1st paper in clinical subjects will be on applied aspects of basic medical sciences. Recent advances may be asked in any or all the papers. In basic medical subjects and para-clinical subjects, questions on applied clinical aspects shall also be asked.

Pattern of Theory Examination Question Paper:

Each paper shall consist of two long essay questions each carrying 20 marks, 3 short essay questions each carrying 10 marks and 6 short answer questions each carrying 5 marks. Total marks for each paper shall be 100.

Practical/Clinical Examination: In case of Practical examination for the subjects in Basic Medical Sciences Practical Examination shall be conducted to test the knowledge and competence of the candidates for making valid and relevant observations based on the experimental/Laboratory studies and his ability to perform such studies as are relevant to his subject.

Clinical examination for the subjects in Clinical Sciences shall be conducted to test the knowledge and competence of the candidates for undertaking independent work as a specialist/Teacher, for which candidates shall examine a minimum one long case and two short cases.

The total marks for Practical / clinical examination shall be 200.

Viva Voce: Viva Voce shall be thorough and shall aim at assessing the candidate knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality, which form a part of the examination.

The total marks shall be 100 and the distribution of marks shall be as under:

- | | | |
|-----|---|----|
| i) | For examination of all components of syllabus | 80 |
| ii) | For Pedagogy | 20 |

If there is skills evaluation, 10 marks shall be reserved for Pedagogy and 10 marks for skill evaluation.

Examiners. There shall be at least four examiners in each subject. Out of

them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

Criteria for declaring as pass in Deemed to be University Examination:

A candidate shall pass theory and practical including clinical and viva-voce examination separately and shall obtain 40% marks in each theory paper and not less than 50% marks cumulatively in all the four papers for post graduate degree examination to be declared as pass.

A candidate obtaining less than 40% marks in any paper and obtaining less than 50% of marks cumulatively in all the four papers for postgraduate degree examination shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Controller of Examinations.

Declaration of class: A successful candidate passing the Deemed to be University examination in first attempt and secures grand total aggregate 75% of marks or more will be declared to have passed the examination with distinction, 65% but below 75% declared as First Class and 50% but below 65% declared as Second Class.

A candidate passing the Deemed to be University examination in more than one attempt shall be declared as Pass Class irrespective of the percentage of marks.

Post Graduate Diploma Examinations

Diploma examination in any subject shall consist of theory (written papers), Practical / Clinical and Viva - Voce.

Theory: There shall be three written question papers each carrying 100 marks. Each paper will be of three hours duration. In clinical subjects one paper out of this shall be on basic medical sciences. In basic medical subjects and Para-clinical subjects, questions on applied clinical aspects shall also be asked.

Pattern of Theory Examination Question Paper:

Each paper shall consist of two long essay questions each carrying 20 marks, 3 short essay questions each carrying 10 marks and 6 short answer questions each carrying 5 marks. Total marks for each paper shall be 100.

Practical Clinical Examination: In case of practical examination it shall be aimed at assessing competence, skills related to laboratory procedures as well as testing students ability to make relevant and valid observations, interpretation of laboratory or experimental work relevant to his/her subject.

In case of clinical examination, it shall aim at examining clinical skills and competence of candidates for undertaking independent work as a specialist. Each candidate shall examine at least one long case and two short cases.

The maximum marks for Practical / Clinical shall be 150.

Viva Voce Examination: Viva Voce examination shall be thorough and shall aim at assessing the candidate's knowledge and competence about the subject, investigative procedures, therapeutic technique and other aspects of the speciality, which shall form a part of the examination. The total marks shall be 50.

Examiners. There shall be at least four examiners in each subject. Out of

them, two shall be external examiners and two shall be internal examiners. The qualification and teaching experience for appointment as an examiner shall be as laid down by the Medical Council of India.

Criteria for declaring as pass in Deemed to be University Examination:

A candidate shall pass theory and practical including clinical and viva-voce examination separately and shall obtain 40% marks in each theory paper and not less than 50% marks cumulatively in all the three papers for post graduate diploma examination to be declared as pass.

A candidate obtaining less than 40% marks in any paper and obtaining less than 50% of marks cumulatively in all the three papers for post graduate diploma examination shall be declared to have failed in the examination. Failed candidate may appear in any subsequent examination upon payment of fresh fee to the Controller of Examinations.

Declaration of class: A successful candidate passing the Deemed to be University examination in first attempt and secures grand total aggregate 75% of marks or more will be declared to have passed the examination with distinction, 65% but below 75% declared as First Class and 50% but below 65% declared as Second Class.

A candidate passing the Deemed to be University examination in more than one attempt shall be declared as Pass Class irrespective of the percentage of marks.

13. Number of candidates per day

The maximum number of candidates to be examined in Clinical/ practical and Oral on any day shall not exceed eight for M.D./M.S. degree, eight for diploma.

CHAPTER II

GOALS AND GENERAL OBJECTIVES OF POSTGRADUATE MEDICAL EDUCATION PROGRAM

GOAL

The goal of postgraduate medical education shall be to produce competent specialists and/or medical teachers:

1. Who shall recognize the health needs of the community and carry out professional obligations ethically and in keeping with the objectives of the national health policy.
2. Who shall have mastered most of the competencies, pertaining to the specialty, that are required to be practiced at the secondary and the tertiary levels of the health care delivery system.
3. Who shall be aware of the contemporary advance and developments in the discipline concerned.
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.

GENERAL OBJECTIVES

At the end of the postgraduate training in the discipline concerned the student shall be able to:

1. Recognize the importance to the concerned speciality in the context of the health needs of the community and the national priorities in the health section.
2. Practice the specialist concerned ethically and in step with the principles of primary health care.
3. Demonstrate sufficient understanding of the basic sciences relevant to the concerned specialty.
4. 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 primitive measure/strategies.
5. Diagnose and manage majority of the conditions in the speciality concerned on the basis of clinical assessment, and appropriately selected and conducted investigations.
6. Plan and advice measures for the prevention and rehabilitation of patients suffering from disease and disability related to the specialty.
7. Demonstrate skills in documentation of individual case details as well as morbidity and mortality rate relevant to the assigned situation.
8. Demonstrate empathy and humane approach towards patients and their families and exhibit interpersonal behavior in accordance with the societal norms and expectations.
9. Play the assigned role in the implementation of national health programme, effectively and responsibly.

10. Organize and supervise the chosen/assigned health care services demonstrating adequate managerial skills in the clinic/hospital or the field situation.
11. Develop skills as a self-directed learner, recognize continuing education needs; select and use appropriate learning resources.
12. Demonstrate competence in basic concepts of research methodology and epidemiology, and be able to critically analyze relevant published research literature.
13. Develop skills in using educational methods and techniques as applicable to the teaching of medical/nursing students, general physicians and paramedical health workers.
14. Function as an effective leader of a health team engaged in health care, research or training.

STATEMENT OF THE COMPETENCIES: Keeping in view the general objectives of postgraduate training, each discipline shall aim at development of specific competencies which shall be defined and spelt out in clear terms. Each department shall produce a statement and bring it to the notice of the trainees in the beginning of the programme so that he or she can direct the efforts towards the attainment of these competencies.

COMPONENTS OF THE POSTGRADUATE CURRICULUM:

The major components of the Postgraduate curriculum shall be:

- Theoretical knowledge
- Practical and clinical skills
- Dissertation skills.
- Attitudes including communication skills.
- Training in Research Methodology, Medical Ethics and Medicolegal aspects.

(Source: Medical Council of India, Regulations on Postgraduate Medical Education, 2000)

CHAPTER III

Monitoring Learning Progress

It is essential to monitor the learning progress of each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring shall 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. Model checklists are given in this chapter which may be copied and used.

The learning outcomes to be assessed should include:

1. Personal Attitudes.
2. Acquisition of Knowledge.
3. Clinical and operative skills and
4. Teaching skills.

1. Personal Attitudes: The essential items are:

- a) Caring attitude.
- b) Initiative.
- c) Organisational ability.
- d) Potential to cope with stressful situations and undertake responsibility.
- e) Trustworthiness and reliability.
- f) To understand and communicate intelligibly with patients and others.
- g) To behave in a manner that establishes professional relationships with patients and colleagues.
- h) Ability to work in a team.
- i) 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.

2. 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.

- a) **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, Chapter III)
- b) **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, Chapter III)

- c) **Clinico-pathological conferences.** This should be a multidisciplinary 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.
- d) **Medical Audit.** Periodic morbidity and mortality meeting shall be held. Attendance and participation in these must be insisted upon. This may not be included in assessment.

3. Clinical skills:

- a. **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, Chapter III).
 - b. **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, Chapter III).
 - c. **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, Chapter III).
4. **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, Chapter III).
 5. **Periodic tests:** In case of degree courses of three years duration, the department 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. In case of diploma courses of two year duration, the departments may conduct two tests. One of them at the end of first year and the other in the second year, three months before the final examination. The tests may include written papers, practical / clinical and viva voce.
 6. **Work diary:** 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.
 7. **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 Deemed to be University or MCI.
 8. **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 of Chapter III. 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 counseled 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 him or herself right.

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:

Sl No	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 Faculty/Observer:

Date:

SI 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.	Beside manners					
8.	Rapport with patients					
9.	Counseling patient's relatives for blood donation or Postmortem and Case follow up.					
10.	Overall 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	Good 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 logically from history and findings					
10.	Investigations required <ul style="list-style-type: none"> • 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					
	Total Score					

Check List - V

MODEL CHECK LIST FOR EVALUATION OF TEACHING SKILL PRACTICE

SI 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 of the Student:

Name of the Faculty:

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					
	Total Score					

Check List - VII

**CONTINUOUS EVALUATION OF DISSERTATION WORK
BY GUIDE / CO GUIDE**

Name of the Student:

Name of the Faculty:

Date:

SI No	Items for observation during presentations	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 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

SI No	Faculty Member & Others	Name of Student and Mean Score*																		
		A	B	C	D	E	F	G	H	I	J									
1.	Journal Review Presentations																			
2.	Seminars																			
3.	Clinical work in wards																			
4.	Clinical presentation																			
5.	Teaching skill practice																			
	Total Score																			

Note: Use separate sheet for each year.

Signature of HOD

Signature of Principal

The above overall assessment sheet used along with the logbook should form the basis for certifying satisfactory completion of course of study, in addition to the attendance requirement.

* KEY:

Mean score : Is the sum of all the scores of checklists 1 to 7.
A, B, Name of the trainees.

Chapter IV

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 patients, 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 and General Objective stated in Chapter II and develop human values it is urged that ethical sensitisation be achieved by lectures or discussion on ethical issues, clinical 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
 - 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 Intra-fallopian Transfer (SIFT).
- Gamete Intra-fallopian Transfer (GIFT).
- Zygote Intra-fallopian 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 care.
- Malpractice and Negligence.

8. Research Ethics

- Animal and experimental research / humaneness.
- 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

1. Francis C.M., Medical Ethics, 1 Ed, 1993, Jaypee Brothers, New Delhi.
2. Good Clinical Practices:GOI Guidelines for clinical trials on Pharmaceutical Products in India (www.cdsco.nic.in)
3. INSA Guidelines for care and use of Animals in Research – 2000.
4. CPCSEA Guidelines 2001 (www.cpcsea.org.)
5. Ethical Guidelines for Biomedical Research on Human Subjects, 2000, ICMR, New Delhi.
6. ICMR Guidelines on animal use 2001, ICMR, New Delhi.

Chapter V – Syllabus

M S OPHTHALMOLOGY

GOALS:

The goals of postgraduate training in Ophthalmology would be to train a basic medical graduate (MBBS):

- To practice as an ophthalmic specialist equipped with appropriate knowledge and skills necessary to care for the normal and sick patient.
- To practice ophthalmology in the community (urban or rural) and to perform professionally at all levels of the existing health care system.
- To practice with empathy and the highest ethical standards of the profession.
- To continue to strive for excellence by continuing medical education throughout his or her professional career.
- To teach by sharing knowledge and skills with colleagues.
- To research and find solutions to challenges in health care.

OBJECTIVES

The objectives to be fulfilled at the completion of the course are as follows: At the end of the program, the student should be able to:

Knowledge:

- Describe, identify and monitor normal patterns of growth and development of vision and visual system.
- Describe aetio-pathogenesis, principles of clinical diagnosis, investigations and treatment of diseases of the eye.
- Demonstrate an understanding of basic (pre and para-clinical) sciences and its application to the normal and abnormal processes.
- Analyze clinical and investigation data approach and manage a health-related problem.
- Identify and understand socio-economic-environmental-cultural factors in health care.
- Recognize problems outside his or her abilities and appropriately refer.
- Update one's knowledge and skills by self-directed learning, by participating in continued medical education programs and utilizing media – spoken, written, print and electronic.
- Teach students and share knowledge and skills with colleagues.
- Audit and analyze work, assist in research and publish scientific articles in peer reviewed journals.

Skills:

- Elicit an appropriate clinical history.
- Demonstrate appropriate clinical physical examination skills on patient.
- Plan, decide upon and interpret appropriate cost effective investigations.
- Perform essential procedures both diagnostic and therapeutic including surgeries, lasers & injections
- Manage ophthalmic emergencies.

Communication and attitudes:

- Communicate appropriately with patient and attendants, assisting in their health care and decision making.
- Practice ophthalmic care at the highest ethical level, protecting the patient at all costs.
- Respect patient's (and their guardian's) rights and professional relationships (doctor-doctor, doctor-nurse, doctor-patient, doctor-society).
- Apply the highest level of ethics in research, publication, references and practice of Ophthalmology

SYLLABUS**Course Contents****Essential theoretical knowledge**

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

1. The Basic Sciences:

- a. Orbital and ocular anatomy
 - i)Gross anatomy
 - ii)Histology
- b. Ocular Physiology
- c. Pathology
 - i)General pathology
 - ii)Ocular pathology: gross pathology, histopathology.
- d. Biochemistry: general biochemistry, biochemistry applicable to ocular function.
- e. Microbiology
 - i)General microbiology
 - ii)Specific microbiology applicable to the eye
 - iii)Immunology with particular reference to ocular immunology
- f. Geometric and ophthalmic optics
 - i)Basic physical optics
 - ii)Ophthalmic optics
 - iii)Applied optics including optical devices

2. Clinical Ophthalmology

- a. Disorders of refraction
- b. Disorders of the lids
- c. Disorders of the lacrimal system
- d. Disorders of the conjunctiva
- e. Disorders of the sclera
- f. Disorders of the cornea
- g. Disorders of the uveal Tract
- h. Disorders of the lens
- i. Disorders of the retina

- j. Disorders of the optic nerve & visual pathway
- k. Disorders of the orbit
- l. Glaucoma
- m. Neuro ophthalmology
- n. Paediatric ophthalmology
- o. Systemic ophthalmology (ocular involvement in systemic disease)
- p. Immune ocular disorders
- q. Strabismus & amblyopia
- r. Vitreous
- s. Ocular Trauma
- t. Community ophthalmology

Essential diagnostic skills - instrumentation

- **Tonometry**
 - Applanation
 - Indentation (commonly Schiøtz)
- **Assessment of epiphora**
 - Jone's dye test
 - Syringing - performance & interpretation
- **Dry eye evaluation**
 - Schirmer's test
 - Rose Bengal staining
 - Tear film breakup time
 - Tear meniscus evaluation
- **Corneal ulceration**
 - Taking a corneal scraping
 - Inoculation into media
 - Evaluation of Gram's stain
 - Evaluation of KOH preparation
 - Corneal wedge biopsy
- **Direct ophthalmoscopy**
 - Distant direct
 - Media assessment
 - Use of filters provided
- **Indirect ophthalmoscopy**
 - Scleral depression
 - Fundus drawing capability
 - Use of filters provided
- **Slit Lamp Examination**
 - Diffuse examination
 - Focal examination
 - Retro illumination — direct & indirect
 - Sclerotic scatter

- Specular reflection
- Staining modalities and interpretation
- **Slit Lamp Accessories:**
 - Applanation tonometry
 - Goldman's applanation
 - Gonioscopy
 - Single mirror gonioscope
 - Gonioprism
 - Grading of the angle
 - Testing for occludability
 - Indentation gonioscopy
 - 3- mirror examination of the fundus
 - 78-D / 90-D / 60-D examination
 - Hruby lens examination
 - Optical pachymetry
 - van Herick test
 - Slit lamp photography
- **Colour vision evaluation**
 - Ishihara pseudo-isochromatic plates
 - Other tests including
 - Farnsworth - Munsell 100 - hue or 15 - hue tests
 - Holmgren's wools
 - Edridge -Green lantern
- **Use of Amsler's charting**
 - Instruction to the patient, use of interpreting the chart.
- **Corneal topography and corneal mapping**
 - Interpretation of corneal topography mapping
- **Specular microscopy of the corneal endothelium**
- **Keratometry**
 - Performance & interpretation of keratometry
 - Diagnosis of situations such as keratoconus
 - Keratotomy
- **Fundus photography & fundus fluorescein angiography (FFA, FAG)**
 - Doing and evaluating stereoscopic fundus photographs
 - Performance of and interpretation of FFA
 - Performance of indirect fluorescein angiography, ICG
- **OCT**
- **Refraction**
 - Retinoscopy
 - Streak retinoscopy
 - Use of trial set
 - Use of Jackson's cross-cylinder
 - Subjective and objective refraction, Fogging
- **Autorefractometry**
 - Use of and interpretation of auto-refractometer

- **Diagnosis & assessment of Squint**
 - Ocular position and motility examination
 - Versions, ductions, and vergences
 - Convergence facility estimation
 - Cover / uncover / alternate cover test
 - Use of prism bars or free prisms in assessment of squint
 - Use of synaptophore / major amblyoscope – tests for fusion, BSV, Stereopsis
 - Use of Bagolini’s striated glasses / red filters / Maddox rod
 - Use of Worth’s four dot test
 - Use of minor major amblyoscope
 - Use & interpretation of the Hess chart / Lees’ screen
 - Performance & interpretation of diplopia charting
 - Diagnosis of amblyopia
 - Maddox wing, Maddox tangent scale

- **Exophthalmometry**
 - Use of Hertel’s exophthalmometer
 - Use of Luedde’s exophthalmometer
 - Use of other exophthalmometers
 - Measurement of proptosis or exophthalmos

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

- **Interpretation of perimetry**
 - Tangent screening
 - Goldman perimeter & interpretation
 - Static computerized perimetry
 - Interpretation of commonly managed problems

- **Radiology**
 - Interpretation of plain skull films
 - PA-20 (Caldwell’s view)
 - PNS (Water’s view)
 - Lateral
 - Submentovertical
 - Optic canal views
 - Localisation of intra ocular and intra orbital FBs
 - Interpretations of contrast studies
 - Performance & interpretation of dacryocystograms
 - Performance and interpretations of orbital venograms
 - Interpretation of carotid angiograms
 - Interpretation of CT - Scans & MRI Scans
 - Orbital CT interpretation & orbital MRI evaluation
 - Brain CT interpretation

Training in Pedagogical skills

Community ophthalmological works such as conducting and organizing camps etc.

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	-	-	250	250
iii. Parabolbar anaesthesia	✓	-	-	-
iv. Facial blocks				
• O'Brians	-	-	-	30
• Atkinsons	-	-	-	5
• Van Lints & modifications	-	-	-	5
v. Frontal blocks	-	-	-	2
vi. Infra orbital blocks	-	-	-	1
vii. Blocks for sac surgery	-	-	-	15
Procedure	Nature of activity* & number			
	O	A	PA	PI
b. Magnification:				
i. Operating microscope familiarity with use is essential	-	-	-	400
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	10
v. Epilation, electrolysis, cryotherapy etc	-	-	-	10
d. Destructive procedures :				
i. Evisceration with or without implant	-	-	-	3
ii. Enucleation with or without implant	-	-	-	15
iii. Modified enucleation procedures for intraocular tumours		-	1	-
e. Sac surgery				
i. Dacrocystectomy	-	-	-	2
ii. Dacryocystorhinostomy	-	-	-	5
iii. Probing for congenital obstruction of nasolacrimal duct	-	-	2	-
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 with or without IOL implantation	-	-	-	350
iii. Membranectomy	✓			
iv. Secondary AC or PC IOL implantation	✓			
v. Phacoemulsification	-	-	-	10
vi. Intra capsular cataract extraction	✓			
vii. Vectis extraction		-	-	-
h. Retinal surgery				
i. Needs to know how to assist in procedures such as buckling	-	5	-	-
ii. Prophylactic cryotherapy	✓	5	-	-
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. Guided Fine needle aspiration biopsy of orbital disease	✓	-	-	1
(if experienced pathologist is available)				
j.Vitrectomy				
i. Intra vitreal and intra cameral (anterior chamber) injection techniques and dosages, particularly for endophthalmitis management.	-	-	2	5
ii. Needs to know the basics of open sky vitrectomy (anterior segment) as management of cataract surgery complication	-	-	-	4
iii. Automated vitrectomy	✓	5		
k. Keratoplasty				
i. Assisting or doing penetrating keratoplasty (therapeutic, optical)	-	-	3	-
ii. Lamellar keratectomy	✓	-	-	-
l. Glaucoma surgery				
i. Trabeculectomy	-	-	-	3
ii. Pharmacological modifications of trabeculectomy			2	
iii. Goniotomy	✓			

iv. Cyclocryotherapy and other cyclode- structive procedures	-	-	-	2
m.Surface ocular procedures				
i. Pterygium excision with modifications	-	-	-	5
ii. Conjunctival grafting	-	-	2	5
iii. Biopsy of cornea and conjunctiva	-	-	-	1
o. Tarsorrhaphy	-	-	-	3
2. Outpatient :				
a. Manual diagnostic procedures such as syring- ing, corneal scraping, conjunctival swab col- lection, conjunctival scraping etc.	-	-	-	120
b. Conjunctival and corneal foreign body remov- al on the slit lamp	-	-	-	20
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	-	-	-	100
g. Posterior Sub- Tenon's injections	-	-	-	5
h. Artificial eye fitting	-	-	-	5
i. Laser procedures	✓	-	-	-
i. Laser capsulotomy	-	-	-	3
ii. Laser iridotomy	-	-	-	3
iii. Laser trabeculoplasty	✓	-	-	-
iv. Panretinal photocoagulation	-	-	-	15
v. Focal photocoagulation	✓	-	-	-

* The procedures that the student should have:

O= observed

A = Assisted the operating surgeon

PA= Performed with assistance

PI = performed independently.

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 fora particularly free papers in scientific conferences within allotted framework of time

6. Organization

- 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

I. TEACHING LEARNING ACTIVITIES

TEACHING SESSIONS

	ACTIVITY	FREQUENCY	MODERATOR	EVALUATOR
1	CASE DISCUSSION	Once in a week	Faculty	Faculty other than moderator
2	JOURNAL CLUB	Once in a week	Faculty	Faculty other than moderator
3	SEMINAR	Once in a week	Faculty	Faculty other than moderator
4	DEMONSTRATION OF USE OF OPHTHALMIC INSTRUMENTS	Twice a month	Faculty	Faculty other than moderator

5	INTEGRATED TEACHING	Once in 2 months	Faculty	Faculty other than moderator
6	MORBIDITY MEETING	Once in 2 months	Faculty	Faculty other than moderator
7	GRAND ROUNDS	Once in a week	Unit chief/HOD	Faculty other than moderator

Additional Sessions on Basic Sciences, Biostatistics, Medical Ethics, Legal Issues, and clinico-pathological conferences may be organized as an Institutional Activity

Methods suggested for Ophthalmology Postgraduate Training Programs:

- **Didactic Lectures: (Faculty lectures):**
 - Objective: To introduce a broad-based concept in an important area of learning to orient the postgraduate student.
 - Examples: Optics and Refraction
 - Frequency: Once a week
- **Seminars:**
 - Objective: To enable a student to study in depth an important area of learning important to the training of the student.
 - Examples: Ophthalmic investigations and their interpretation.
 - Frequency: Four times a month, topics to rotate once every 2-3 years (DOMS, MS).

Topic to be shared among 2-3 students and to be equally distributed depending upon the number of postgraduate students in the department. Ideally, MS students should be given more conceptual topics needing a higher degree of understanding and in-depth study. Seniors should have also a more difficult part of the topic when presented as a two-person seminar. Juniors can present after a preliminary month of observation of seminar and ideally could be in combination with senior postgraduates.

- **Journal Club:**
 - Objective: To appreciate and enable the critical analysis of scientific literature published in peer reviewed journals, studies, reviews.
 - Examples: Recent advances in ophthalmic practice.
 - Frequency: Once in a week . MS get the first opportunity and juniors begin after their first year in the course.
- **Undergraduate Teaching Clinics**
 - Objective: To teach effectively undergraduate and colleagues utilizing simple educational methods.
 - Methodology: During the third year of MS course, postgraduate students should be given opportunities to teach undergraduates.
 - Examples: Bedside Clinic, Didactic lecture, skill workshop
 - Frequency: During undergraduate postings in the department each postgraduate should have a minimum of 2 opportunities per year after the first year of the postgraduate course is completed.
- **Practical demonstration of Investigative procedures and tests in Ophthalmology**
 - Objective: To learn investigative techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions,

treatment and communication.

o Examples: Slit Lamp Examination, B Scan, Indirect Ophthalmoscope, Direct Ophthalmoscope, OCT, Fundus camera, Automated perimetry, Gonioscopy etc

o Frequency: twice in a month is the minimum as it forms the basis of good - clinical training activities conducted by senior faculty.

- **Case discussion:**

- o Objective: To learn bedside techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment and communication.

- o Examples: Glaucoma, Diabetic Retinopathy, Acute uveitis, Retinopathy

- o Frequency: once in a week is the minimum as it forms the basis of good - clinical training activities

- **Morbidity Review Meeting**

- o Objective: To analyze, discuss and learn from morbidity.

- o Methodology: Once a month, all morbidities in the concerned department are presented to the department, both faculty and residents and pre-chosen cases are presented in detail. These cases are discussed further and after analysis shortcomings in diagnosis and treatment are identified to prevent future similar mortalities.

- o Examples: Injury patients, non-healing corneal ulcer, post op complications

- o Frequency : Once in 2 months preferably in the first week to allow the previous months mortality to be presented for discussion.

- **Grand Rounds**

- o Objective: To improve on bedside techniques – interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment, communication.

- o Examples: Lens induced glaucoma

- o Frequency: Once in a week , Head of Unit or Department will conduct the rounds without any interference to daily care of patients.

- **Inter-departmental meetings**

- o Objective: To experience inter-departmental cooperation and develop a healthy professional respect for each other's opinions in addition to the subject learning experience.

- o Methodology: Case discussions or students present investigations to members of both faculty. The discussion is a learning experience and improves communications between departments.

- o Examples: Proptosis due to maxillary Carcinoma.

- o Frequency: Once in 2 months and rotated between departments – radiology, surgery, , neurology, neurosurgery, ENT etc.

- **Clinical Pathological Conference/ CPC**

- o Objective: To analyze clinical material to reach a differential diagnosis and correlate with the pathological biopsy findings.

- o Frequency: Once in two months. First choice is a senior MS student. All are encouraged to participate.

- **Records Round**

- o Objective: To appreciate the importance of documentation of facts and record keeping.
- o Methodology: Faculty in the presence of the team scrutinizes random case records. History sheets, doctor order sheets, progress sheets and discharge summaries are discussed.
- o Frequency: Once a week with the entire team present at the session.

IV. ROTATION POSTINGS

1. Core

- OPD for 1st six months.
- Specialty clinics like Retina, Glaucoma, Squint, and Cornea. – 3 months on rotation.

2. Allied Specialties (on rotation) – 6 weeks

- Plastic Surgery
- Neurology / Neurosurgery
- Intensive Care
- ENT

V. MONITORING LEARNING PROGRESS:

- 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 is 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 include: (1) Personal Attitudes, (2) Acquisition of Knowledge, (3) Clinical and operative skills, (4) Teaching skills and (5) Dissertation.

1. Personal Attitudes. The essential items are:

- Caring attitudes
- Initiative
- Organizational 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 that 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.

- ##### **2. 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.
- 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

- 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
- 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.

3. 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, chapter IV).
- Clinical meetings: Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list
- 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.

4. 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

5. 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 Deemed to be University for Registration, again before finalization for critical evaluation and another before final submission of the completed work.

GUIDELINES FOR PERIODIC REVIEW OF DISSERTATION:

Within 3 months of joining course: synopsis presentation

During 2nd year: mid-term presentation

6 months prior to examination: final presentation and submission

6. Periodic tests: The departments may conduct internal test once in 2 months.

7. Work diary / Log Book/Records: Every candidate shall maintain a work diary and record his/her participation in the training programs 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.

VI.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 program 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 provided. Copies may be made and used by the institutions.

Procedure for defaulters: The department should have a committee to review such situations. The defaulting candidate is counseled 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

LOG BOOK EVALUATION

At the end of first year, second year and 3 months before final examination, the logbook will be evaluated considering the following parameters:

1. Skills and procedures learned independently, under supervision or assisted by him
2. Presentations in journal clubs
3. Cases presented in clinical meetings
4. Presentation in departmental seminars
5. Intra and interdepartmental training and evaluation details
6. Teaching activities
7. Conferences/workshops/CME attended
8. Papers presented/published conferences
9. Side lab procedures done
10. Thesis progress and evaluation detail

VII. SCHEME OF EXAMINATION

a. THEORY 400 MARKS

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 3 short essay questions each carrying 10 marks, 6 short answers of 5 marks each. Total marks for each paper will be 100. Questions on recent advances can be asked in all the papers. Details of distribution of topics for each paper will be as follows.

Paper I: Basic Sciences including optics

- a. Anatomy of the eye & orbit
- b. Ocular physiology
- c. Ophthalmic pathology
- d. Microbiology & immunology
- e. Biochemistry relevant to ophthalmology
- f. Geometric and ophthalmic optics

Paper II: Disorders of Conjunctiva, Cornea, Uvea, Refraction, Squint & Immunity

- a. Disorders of Refraction
- b. Concomitant Strabismus and amblyopia disorders of the sclera
- c. Disorders of the uvea
- d. Immuno-ocular disorders

- e. Disorders of the cornea
- f. Disorders of the conjunctiva

Paper III: Disorders of Adnexa, Neuro-ophthalmology and Pediatric ophthalmology

- a. Disorders of the orbit
- b. Disorders of the lids
- c. Disorders of the lacrimal system neuro-ophthalmology, paediatric ophthalmology

Paper IV: Lens, Glaucoma, Retina, Systemic and Community Ophthalmology and Ocular pharmacology

- a. Glaucoma
- b. Systemic ophthalmology Disorders of the Retina Disorders of the Lens Community ophthalmology
- c. Ocular Pharmacology

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

EACH PAPER:	Time: 3 Hours	Max Marks:100
2 LONG ESSAYS:	20 MARKS EACH -	2×20=40 MARKS
3 SHORT ESSAYS:	10 MARKS EACH -	3×10=30 MARKS
6 SHORT ANSWERS:	5 MARKS EACH -	6×5= 30 MARKS

Recent advances as applied to ophthalmic disorders can be incorporated in ALL THE PAPERS

WEIGHTAGE OF MARKS IN EACH PAPER

MS OPHTHALMOLOGY

Paper I: Basic Sciences including optics

- Anatomy of the eye & orbit 20
- Ocular physiology 20
- Ophthalmic pathology 10
- Microbiology & immunology 20
- Biochemistry relevant to ophthalmology 10
- Geometric and ophthalmic optics 20

Paper II: Disorders of Conjunctiva, Cornea, Uvea, Refraction, Squint & Immunity

- Disorders of the conjunctiva 20
- Disorders of the cornea 20
- Disorders of the uvea 20
- Disorders of Refraction 20
- Concomitant Strabismus and amblyopia disorders of the sclera 10

- Immuno-ocular disorders 10

Paper III: Disorders of Adnexa, Neuro-ophthalmology and Pediatric ophthalmology

- Disorders of the orbit 20
- Disorders of the lids 25
- Disorders of the lacrimal system 25
- Neuro-ophthalmology 15
- Paediatric ophthalmology 15

Paper IV: Lens, Glaucoma, Retina, Systemic and Community Ophthalmology and Ocular pharmacology

- Disorders of the Lens 20
- Glaucoma 20
- Disorders of the Retina 20
- Systemic ophthalmology 20
- Community ophthalmology 10
- Ocular Pharmacology 10

d. **Clinical Examination: 200 marks**

CASES	NO	MARKS	TIME FOR	
			EXAMINATION	DISCUSSION
1. LONG CASE	1	50	40 min	40 min
2. SHORT CASES	2	25 X 2	15 min X 2	15 min X 2
3. FUNDUS CASES	2	25 X 2	15 min X 2	15 min X 2
4. REFRACTION CASE	2	25X2	10 minX2	10 min X2
Total	5	200	2 Hours.	2 Hours

- Long case will be evaluated by all the four examiners together. Each examiner will assign marks independently for a maximum of 12.5 marks.
- Short, fundus and refraction cases will be evaluated by 2 examiners (1 internal and 1 external). Each examiner will assign marks independently for a maximum of 12.5 marks (Per Short Case).
- Sum Total of all the marks will be the final marks.

Recommended Cases:-

a. **Long case:**

- Neuro ophthalmology
- Proptosis
- Sclerokeratouveitis
- Uveitis with complications
- Lens induced complications
- Glaucoma

b. **Short cases:**

c. **Fundus cases:**

- Rhegmatogenous retinal detachment
- Diabetic retinopathy, background & proliferative
- 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

d. **Refraction:**

e. **VIVA-VOCE EXAMINATION: 100 MARKS**

1. VIVA VOCE: 80 MARKS

Will be conducted at 4 stations by all 4 examiners for 20 marks each. The stations are as follows:

STATION 1: INSTRUMENTS, SYSTEMIC DISORDERS

STATION 2: X- RAYS, ULTRASOUND, CT SCAN MRI, FFA, OCT, VISUAL FIELDS, DIPLOPIA CHART, CORNEAL TOPOGRAPHY IMAGES FOR INTER- PRETATION

STATION 3: DRUGS, PATHOLOGY AND MICROBIOLOGY SLIDES

STATION 4: OPTICS& COMMUNITY OPHTHALMOLOGY

2. PEDAGOGY EXERCISE: 10 MARKS

A topic will be given to each candidate in the beginning of viva voce examination. He/she is asked to make a presentation on the topic for 8-10 minutes.

3. LOG BOOK: 10 MARKS

Maximum marks

Theory	Practical	Viva	Grand Total
400	200	100	700

VIII. RECOMMENDED BOOKS AND JOURNALS TEXTS:

Recommended books:

- Duane's System of Ophthalmology
- Jakobiec Series
- Peyman's Series
- Pathology gross specimens Duke-Elder's System of Ophthalmology
- American Academy Series
- Yanoff and Duker – Ophthalmology
- Jack Kanski: Clinical Ophthalmology
- Parsons Diseases of the eye
- Clinical Eye Atlas by Lewis
- Wills Eye Manual
- Wills 5 minute Ophthalmology Consult
- Moorfields Manual of Ophthalmology
- Ocular surface disorders – Castillo and Iemp
- Handbook of Clinical trials in Ophthalmology – AK Gupta

- Clinical Practice patterns in Ophthalmology – SankaraNetralaya
- Decision making in Ophthalmology – Johan Zwaan

Surgeries:-

- Cataract surgery in diseased eyes – Arup Chakrabarti
- Small Incision Cataract Surgery – KPS Malik, RuchiGoel
- Clinical Practice in Small Incision Cataract Surgery by Ashik Garg
- Basic Techniques of Ophthalmic Surgery - AAO
- Expert techniques in ophthalmic surgery – Yanoff
- Cataract surgery – Robert steinert

Cornea:

- Smolin & Thoft
- Grayson
- Kaufman & Leibowitz

Glaucoma:

- Practical Guide to interpret Visual Fields – GR Reddy
- ISGS Textbook of Glaucoma Surgery
- Wills eye institute – color atlas & synopsis
- Gonioscopy – A text and atlas by Tanuj Dada
- Glaucoma Vol1 and Vol 2 by Tarek Shaarawy
- Bruce Shields Text Book of Glaucoma
- Krupin & Shields Series on Glaucoma
- Becker & Schaeffer's Text Book of Glaucoma
- Anderson's Computerised Perimetry
- Harrington's Text Book of Perimetry
- Leiberman and Drake : Computerised perimetry

Retinal disease:

- Retinal Atlas by Yannuzzi
- Atlas of OCT of Macular diseases and Glaucoma by Vishali Gupta
- Step by Step Vitrectomy by Martinez- Toldos
- Principles and practices of V.R. Surgery by Narendran V
- Stephen Ryan's Retina
- Ron Michel: Retinal Detachment
- Steve Charles: Basic Vitrectomy

Ultra Sound:

- Ophthalmic Ultrasound by Singh and Hayden
- Atlas of ophthalmic ultrasound and US biomicroscopy – SankaraNetralaya
- Byrne & Ronald Green: Ophthalmic Ultrasound

Uvea:

- Atlas of Uveitis & Scleritis by SankaraNetralaya
- Nussenblatt & Palestine
- Diagnosis & Treatment of Uveitis by Jakobiec
- Smith & Nozik

Neuroophthalmology:

- Walsh & Hoyt
- Step by Step Neuroophthalmology Clinical Examination and Diagnosis – Sa-tya Karna

Orbital diseases:

- 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

Oculoplastics:

- Wills eye institute – color atlas & synopsis
- Step by Step Oculoplastic surgery – Dr. Agarwal’s
- Clinical Atlas of Procedures in Ophthalmic and Oculofacial Surgery - Albert
- Ptosis Surgery – Arnab Biswas

Strabismus:

- Gunter von Noorden
- Wills Eye Strabismus Atlas
- Mein & Trimble

Ophthalmic Pathology:

- Yanoff & Fine
- Zimmerman

Pharmacology:

- Roy and Fraunfelder’s Current Ocular Therapy

Anatomy:

- Wolff
- Snell’s

Physiology:

- Adler’s Physiology of the Eye

Biochemistry:

- Standard text books

Immunology:

- Ocular immunology

Paediatric ophthalmology

- Pediatric Ophthalmology & Strabismus by Hoyt & Taylor
- Pediatric Retina by Mary Hartnett
- Pediatric Ophthalmology by Nelson and Olitsky
- Pediatric Ophthalmology surgical and medical management by Ashok Garg
- Kenneth Wright

Refraction:

- Duke Elder’s practice of refraction
- Elkington & Frank

Trauma:-

- Eye Trauma by Shingeleton
- Ocular Trauma clinical diagnosis and management by Ashok Garg

Indexed Journals:

1. Survey of Ophthalmology
2. Journal of Current Glaucoma practice
3. British journal of Ophthalmology
4. Indian journal of Ophthalmology
5. American journal of Ophthalmology

ANNEXURE 1.

OPHTHALMOLOGY POSTGRADUATE TRAINING ‘LOG BOOK’

Contents:

1. Personal Data:

Name

Institution

Dates of Postgraduation studies

Joining

Completion

Degree

Deemed to be University

Dissertation Title

Name and Designation of Guide

Signature of candidate

Signature of Supervisor

Signature of Head of Department

2. Clinical Postings:

Speciality	Duration	Dates of Posting	Remarks by faculty	Any inter- esting case/difficult case
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3. Case Presentations: (eg. Clinics, tutorials)

Date	Name/age/sex	Problem/Diagnosis	Grade	Moderator
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4. Seminars: (eg. Seminar on TB)

Date	Topic of Presentation	Grade	Moderator
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5. Journal clubs

Date	Topic of Presentation	Grade	Moderator
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6. Morbidity meetings:

Date	Name/age/sex	Problem/Diagnosis	Moderator
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7. Guest lectures/ inter departmental teaching:

Date	Topic	Departments involved
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8. Community Activity:

Date	Description of Activity	Supervisor
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9. Paper Presentation: (Local, State, National, International Forum)

Date	Title of Paper presented	conference	Supervisor
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10. Undergraduate Classes taken by MS candidate: (eg. Didactic lecture or clinic)

Date Topic Supervisor

11. Academic Meetings, CMEs and Conferences attended: (Extra mural, Local, State, National, International Forum)

Date Title Organization

12. Training Courses:

Date Title Supervisor

13. Dissertation:

Date progress Remarks by guide

14. Side lab procedures:

Date procedure interpretation supervisor

15. Procedures:

Date name/age/sex procedure diagnosis supervisor

DIPLOMA IN OPHTHALMOLOGY (DO)

GOALS:

The goals of postgraduate training in Ophthalmology would be to train a basic medical graduate (MBBS):

- To practice as an ophthalmic specialist equipped with appropriate knowledge and skills necessary to care for the normal and sick patient.
- To practice Ophthalmology in the community (urban or rural) and to perform professionally at all levels of the existing health care system.
- To practice with empathy and the highest ethical standards of the profession.
- To continue to strive for excellence by continuing medical education
- Throughout his or her professional career.
- To teach by sharing knowledge and skills with colleagues.
- To research and find solutions to challenges in health care.

OBJECTIVES:

The objectives to be fulfilled at the completion of the course are as follows: At the end of the program, the student should be able to:

Knowledge:

- Describe, identify and monitor normal patterns of growth and development of vision and visual system.
- Describe aetio-pathogenesis, principles of clinical diagnosis, investigations and treatment of diseases of the eye.
- Demonstrate an understanding of basic (pre and para-clinical) sciences and its application to the normal and abnormal processes.
- Analyze clinical and investigation data approach and manage a health-related problem.
- Identify and understand socio-economic-environmental-cultural factors in health care.
- Recognize problems outside his or her abilities and appropriately refer.
- Update one's knowledge and skills by self-directed learning, by participating in continued medical education programs and utilizing media – spoken, written, print and electronic.
- Teach students and share knowledge and skills with colleagues.
- Audit and analyze work, assist in research and publish scientific articles in peer reviewed journals.

Skills:

- Elicit an appropriate clinical history.
- Demonstrate appropriate clinical physical examination skills on patient.
- Plan, decide upon and interpret appropriate cost effective investigations.
- Perform essential procedures both diagnostic and therapeutic including surgeries, lasers & injections
- Manage, ophthalmic emergencies.

Communication and attitudes:

- Communicate appropriately with patient and attendant, assisting in their health care and decision making.
- Practice ophthalmic care at the highest ethical level, protecting the patient at all costs.
- Respect patient's (and their guardian's) rights and professional relationships (doctor-doctor, doctor-nurse, doctor-patient, doctor-society).
- Apply the highest level of ethics in research, publication, references and practice of Ophthalmology

SYLLABUS**Course Contents****Essential theoretical knowledge**

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

1. The Basic Sciences:

- Orbital and ocular anatomy
- Gross anatomy
- Histology
- Ocular Physiology
- Pathology
- General pathology
- Ocular pathology: gross pathology, histopathology.
- Biochemistry: general biochemistry, biochemistry applicable to ocular function.
- Microbiology
- General microbiology
- Specific microbiology applicable to the eye
- Immunology with particular reference to ocular immunology
- Geometric and ophthalmic optics
- Basic physical optics
- Ophthalmic optics
- Applied optics including optical devices

2. Clinical Ophthalmology

- Disorders of refraction
- Disorders of the lids
- Disorders of the lacrimal system
- Disorders of the conjunctiva
- Disorders of the sclera
- Disorders of the cornea
- Disorders of the uveal Tract
- Disorders of the lens
- Disorders of the retina
- Disorders of the optic nerve & visual pathway
- Disorders of the orbit
- Glaucoma
- Neuro ophthalmology
- Paediatric ophthalmology
- Systemic ophthalmology (ocular involvement in systemic disease)
- Immune ocular disorders

- Strabismus & amblyopia
- Vitreous
- Ocular Trauma
- Community ophthalmology

Essential diagnostic skills - instrumentation

- Tonometry
 - Applanation
 - Indentation (commonly Schiøtz)
- **Assessment of epiphora**
 - Jones's dye test
 - Syringing - performance & interpretation
- **Dry eye evaluation**
 - Schirmer's test
 - Rose Bengal staining
 - Tear film breakup time
 - Tear meniscus evaluation
- **Corneal ulceration**
 - Taking a corneal scraping
 - Inoculation into media
 - Evaluation of Gram's stain
 - Evaluation of KOH preparation
 - Corneal wedge biopsy
- **Direct ophthalmoscopy**
 - Distant direct
 - Media assessment
 - Use of filters provided
- **Indirect ophthalmoscopy**
 - Scleral depression
 - Fundus drawing capability
 - Use of filters provided
- **Slit Lamp Examination**
 - Diffuse examination
 - Focal examination
 - Retro illumination — direct & indirect
 - Sclerotic scatter
 - Specular reflection
 - Staining modalities and interpretation
- **Slit Lamp Accessories:**
 - Applanation tonometry
 - **Goldman's applanation**
 - Gonioscopy
 - Single mirror gonioscope
 - Gonioprism
 - Grading of the angle

- Testing for occludability
 - Indentation gonioscopy
 - 3- mirror examination of the fundus
 - 78-D / 90-D / 60-D examination
 - Hruby lens examination
 - Optical pachymetry
 - van Herick test
 - Slit lamp photography
- **Colour vision evaluation**
 - Ishihara pseudo-isochromatic plates
 - Other tests including
 - Farnsworth - Munsell 100 - hue or 15 - hue tests
 - Holmgren's wools
 - Edridge -Green lantern
- **Use of Amsler's charting**
 - Instruction to the patient, use of interpreting the chart.
- **Corneal topography and corneal mapping**
 - Interpretation of corneal topography mapping
- **Specular microscopy of the corneal endothelium**
- **Keratometry**
 - Performance & interpretation of keratometry
 - Diagnosis of situations such as keratoconus
 - Keratoscopy
- **Fundus photography & fundus fluorescein angiography (FFA, FAG)**
 - Doing and evaluating stereoscopic fundus photographs
 - Performance of and interpretation of FFA
 - Performance of indirect fluorescein angiography, ICG
- **OCT**
- **Refraction**
 - Retinoscopy
 - Streak retinoscopy
 - Use of trial set
 - Use of Jackson's cross-cylinder
 - Subjective and objective refraction, Fogging
- **Auto-refractometry**
 - Use of and interpretation of auto-refractometer
- **Diagnosis & assessment of Squint**
 - Ocular position and motility examination
 - Versions, ductions, and vergences
 - Convergence facility estimation
 - Cover / uncover / alternate cover test
 - Use of prism bars or free prisms in assessment of squint
 - Use of synaptophore / major amblyoscope – tests for fusion, BSV, Stereopsis
 - Use of Bagolini's striated glasses / red filters / Maddox rod

- Use of Worth's four dot test
 - Use of minor major amblyoscope
 - Use & interpretation of the Hess chart / Lees' screen
 - Performance & interpretation of diplopia charting
 - Diagnosis of amblyopia
 - Maddox wing, Maddox tangent scale
- **Exophthalmometry**
 - Use of Hertel's exophthalmometer
 - Use of Luedde's exophthalmometer
 - Use of other exophthalmometers
 - Measurement of proptosis or exophthalmos
- **Use and evaluation of ophthalmic ultrasound**
 - A- scan ultrasound with biometry
 - B- scan ultrasound: performance & interpretation
- **Interpretation of perimetry**
 - Tangent screening
 - Goldman perimeter & interpretation
 - Static computerized perimetry
 - Interpretation of commonly managed problems
- **Radiology**
 - Interpretation of plain skull films
 - PA-20 (Caldwell's view)
 - PNS (Water's view)
 - Lateral
 - Submentovertical
 - Optic canal views
 - Localisation of intra ocular and intra orbital FBs
 - Interpretations of contrast studies
 - Performance & interpretation of dacryocystograms
 - Performance and interpretations of orbital venograms
 - Interpretation of carotid angiograms
 - Interpretation of CT - Scans & MRI Scans
 - Orbital CT interpretation & orbital MRI evaluation
 - Brain CT interpretation

Training in Pedagogical skills

Community ophthalmological works such as conducting and organizing camps etc.

Essential surgical skills

Procedure	Nature of activity* & number			
	O	A	PA	PI
1. Operating theatre				
a. Anaesthesia:				
i. Retrobulbaranaesthesia	-	-	15	15
ii. Peribulbaranaesthesia	-	-	150	150
iii. Parabolbaranaesthesia	✓	-	-	-

iv. Facial blocks				
• O'Breins	-	-	-	20
• Atkinsons	-	-	-	3
• Van Lints& modifications	-	-	-	3
v. Frontal blocks	-	-	-	1
vi. Infra orbital blocks	-	-	-	1
vii. Blocks for sac surgery	-	-	-	10
b. Magnification :				
i. Operating microscope familiarity with use is essential	-	-	-	300
ii. Operating loupe				
c. Lid surgery :				
i. Tarsorrhaphy	-	-	-	6
ii. Ectropion and entropion procedures	-	-	-	1
iii. Ptosis surgery	-	1	-	-
iv. Lid repair following trauma and surgical excision of lid for tumoursetc	-	-	1	6
v. Epilation, electrolysis, cryotherapy etc	-	-	-	6
d. Destructive procedures :				
i. Evisceration with or without implant	-	-	-	2
ii. Enucleation with or without implant	-	-	-	10
iii. Modified enucleation procedures for intraocular tumours		-	1	-
e. Sac surgery				
i. Dacrocystectomy	-	-	-	1
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	-	-	1	-
g. Cataract surgery				
i. Standard ECCE with or without IOL implantation	-	-	-	6
ii. Small incision with or without IOL implantation	-	-	-	250
iii. Membranectomy	✓			
iv. Secondary AC or PC IOL implantation	✓			

v. Phacoemulsification	-	-	-	6
vi. Intra capsular cataract extraction	✓			
vii. Vectis extraction		-	-	-
h. Retinal surgery				
i. Needs to know how to assist in procedures such as buckling	-	3	-	-
ii. Prophylactic cryotherapy	✓	3	-	-
iii. Orbit surgery				
iv. Anterior orbitotomy for diagnostics and therapy	✓	-	-	-
v. Lateral orbitotomy for tumours	✓	-	-	-
vi. Incision and drainage via anterior orbitotomy for abscess	-	1	-	-
vii. Exenteration	✓	-	-	-
viii. Guided Fine needle aspiration biopsy of orbital disease	✓	-	-	1
(if experienced pathologist is available)				
i. Vitrectomy				
i. Intra vitreal and intra cameral (anterior chamber) injection techniques and dosages, particularly for endophthalmitis management.	-	-	2	3
ii. Needs to know the basics of open sky vitrectomy (anterior segment) as management of cataract surgery complication	-	-	-	2
iii. Automated vitrectomy	✓	3		
j. Keratoplasty				
i. Assisting or doing penetrating keratoplasty (therapeutic, optical)	-	-	2	-
ii. Lamellar keratectomy	✓	-	-	-
k. Glaucoma surgery				
i. Trabeculectomy	-	-	-	2
ii. Pharmacological modifications of trabeculectomy			1	
iii. Goniotomy	✓			
iv. Cyclocryotherapy and other cyclodestructive procedures	-	-	-	1
l. Surface ocular procedures				
i. Pterygium excision with modifications	-	-	-	3
ii. Conjunctival grafting	-	-	1	3
iii. Biopsy of cornea and conjunctiva	-	-	-	1
m. Tarsorrhaphy				
	-	-	-	2

2. Outpatient :				
i. Manual diagnostic procedures such as syringing, corneal scraping, conjunctival swab collection, conjunctival scraping etc.	-	-	-	80
ii. Conjunctival and corneal foreign body removal on the slit lamp	-	-	-	15
a. Chalazion incision and curettage	-	-	-	6
b. Biopsy of small lid and tumours	-	-	2	-
c. Suture removal skin, conjunctival, corneal and corneoscleral	-	-	-	3
d. Subconjunctival injection	-	-	-	75
e. Posterior Sub- Tenon's injections	-	-	-	3
f. Artificial eye fitting	-	-	-	3
g. Laser procedures	✓	-	-	-
i. Laser capsulotomy	-	-	-	2
ii. Laser iridotomy	-	-	-	2
iii. Laser trabeculoplasty	✓	-	-	-
iv. Panretinal photocoagulation	-	-	-	10
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.

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 fora 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

i. TEACHING LEARNING ACTIVITIES

TEACHING SESSIONS

	ACTIVITY	FREQUENCY	MODERATOR	EVALUATOR
1	CASE DISCUSSION	Once in a week	Faculty	Faculty other than moderator
2	JOURNAL CLUB	Once in a week	Faculty	Faculty other than moderator
3	SEMINAR	Once in a week	Faculty	Faculty other than moderator
4	DEMONSTRATION OF USE OF OPHTHALMIC INSTRUMENTS	Twice a month	Faculty	Faculty other than moderator
5	INTEGRATED TEACHING	Once in 2 months	Faculty	Faculty other than moderator
6	MORBIDITY MEETING	Once in 2 months	Faculty	Faculty other than moderator
7	GRAND ROUNDS	Once in a week	Unit chief/HOD	Faculty other than moderator

Additional Sessions on Basic Sciences, Biostatistics, Medical Ethics, Legal Issues, and clinic pathological conferences may be organized as an Institutional Activity

Methods suggested for Ophthalmology Postgraduate Training Programs:

- **Didactic Lectures: (Faculty lectures)**
 - Objective: To introduce a broad-based concept in an important area of learning to orient the postgraduate student.
 - Examples: Optics and Refraction
 - Frequency: Once a week
- **Seminars:**
 - Objective: To enable a student to study in depth an important area of learning important to the training of the student.
 - Examples: Ophthalmic investigations and their interpretation.
 - Frequency: Four times a month, topics to rotate once every 2-3 years (DOMS, MS).

Topic to be shared among 2-3 students and to be equally distributed depending upon the number of postgraduate students in the department. Ideally, MS students should be given more conceptual topics needing a higher degree of understanding and in-depth study. Seniors should have also a more difficult part of the topic when presented as a two-person seminar. Juniors can present after a preliminary month of observation of seminar and ideally could be in combination with senior postgraduates.

- **Journal Club:**
 - Objective: To appreciate and enable the critical analysis of scientific literature published in peer reviewed journals, studies, reviews.
 - Examples: Recent advances in ophthalmic practice.
 - Frequency: Once in a week . MS get the first opportunity and juniors begin after their first year in the course.
- **Undergraduate Teaching Clinics**
 - Objective: To teach effectively undergraduate and colleagues utilizing simple educational methods.
 - Methodology: During the third year of MS course, postgraduate students should be given opportunities to teach undergraduates.
 - Examples: Bedside Clinic, Didactic lecture, skill workshop
 - Frequency: During undergraduate postings in the department each postgraduate should have a minimum of 2 opportunities per year after the first year of the postgraduate course is completed.
- **Practical demonstration of Investigative procedures and tests in Ophthalmology**
 - Objective: To learn investigative techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment and communication.
 - Examples: Slit Lamp Examination, B Scan, Indirect Ophthalmoscope, Direct Ophthalmoscope, OCT, Fundus camera, Automated perimetry, Gonioscopyetc
 - Frequency: twice in a month is the minimum as it forms the basis of good - clinical training activities conducted by senior faculty.
- **Case discussion:**
 - Objective: To learn bedside techniques - interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment and communication.

- o Examples: Glaucoma, Diabetic Retinopathy, Acute uveitis, Retinopathy
 - o Frequency: once in a week is the minimum as it forms the basis of good - clinical training activities
 - **Morbidity Review Meeting**
 - o Objective: To analyze, discuss and learn from morbidity.
 - o Methodology: Once a month, all morbidities in the concerned department are presented to the department, both faculty and residents and pre-chosen cases are presented in detail. These cases are discussed further and after analysis shortcomings in diagnosis and treatment are identified to prevent future similar mortalities.
 - o Examples: Injury patients, non-healing corneal ulcer, post op complications
 - o Frequency : Once in 2 months preferably in the first week to allow the previous months mortality to be presented for discussion.
 - **Grand Rounds**
 - o Objective: To improve on bedside techniques – interview, physical examination, analysis, diagnostic decision making, investigation decisions, treatment, communication.
 - o Examples: Lens induced glaucoma
 - o Frequency: Once in a week , Head of Unit or Department will conduct the rounds without any interference to daily care of patients.
 - **Inter-departmental meetings**
 - o Objective: To experience inter-departmental cooperation and develop a healthy professional respect for each other’s opinions in addition to the subject learning experience.
 - o Methodology: Case discussions or students present investigations to members of both faculty. The discussion is a learning experience and improves communications between departments.
 - o Examples: Proptosis due to maxillary Carcinoma.
 - o Frequency: Once in 2 months and rotated between departments – radiology, surgery, , neurology, neurosurgery, ENT etc.
 - **Clinical Pathological Conference/ CPC**
 - o Objective: To analyze clinical material to reach a differential diagnosis and correlate with the pathological biopsy findings.
 - o Frequency: Once in two months. First choice is a senior MSstudent. All are encouraged to participate.
 - **Records Round**
 - o Objective: To appreciate the importance of documentation of facts and record keeping.
 - o Methodology: Faculty in the presence of the team scrutinizes random case records. History sheets, doctor order sheets, progress sheets and discharge summaries are discussed.
 - o Frequency: Once a week with the entire team present at the session.
- ii. ROTATION POSTINGS**
- 1. Core**
 - OPD for 1st six months.

- Specialty clinics like Retina, Glaucoma, Squint, and Cornea. – 2 months on rotation.

2. Allied Specialties (on rotation) – 4 weeks

- Plastic Surgery
- Neurology / Neurosurgery
- Intensive Care
- ENT

iii. MONITORING LEARNING PROGRESS

- 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 is 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 include: (1) Personal Attitudes, (2) Acquisition of Knowledge, (3) Clinical and operative skills, (4) Teaching skills.

1. Personal Attitudes. The essential items are:

- Caring attitudes
- Initiative
- Organizational 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 that 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.

2. 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.

- 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
- 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
- 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.

3. 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, chapter IV).
- Clinical meetings: Candidates should periodically present cases to his peers and faculty members. This should be assessed using a check list
- 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.

4. 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

5. Periodic tests: The departments may conduct internal test once in 2 months.

6. Work diary / Log Book/Records: Every candidate shall maintain a work diary and record his/her participation in the training programs 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.

VI.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 program 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 provided. Copies may be made and used by the institutions.

Procedure for defaulters: The department should have a committee to review such situations. The defaulting candidate is counseled 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

LOG BOOK EVALUATION

At the end of first year, second year and 3 months before final examination, the logbook will be evaluated considering the following parameters:

- Skills and procedures learned independently, under supervision or assisted by him
- Presentations in journal clubs
- Cases presented in clinical meetings
- Presentation in departmental seminars
- Intra and interdepartmental training and evaluation details
- Teaching activities
- Conferences/workshops/CME attended
- Papers presented/published conferences

- Side lab procedures done
- Thesis progress and evaluation detail

VII. SCHEME OF EXAMINATION

a. THEORY 300 MARKS

There shall be four question papers, each of three hours duration. Each paper shall consist of two long essay questions each question carrying 20 marks and 3 short essay questions each carrying 10 marks, 6 short answers of 5 marks each. Total marks for each paper will be 100. Questions on recent advances can be asked in all the papers. Details of distribution of topics for each paper will be as follows.

Paper I: Basic Sciences, Refraction, Squint, paediatric ophthalmology and disease of the lens

- Anatomy of the eye & orbit
- Ocular physiology
- Ophthalmic pathology
- Microbiology & immunology
- Biochemistry relevant to ophthalmology
- Geometric and ophthalmic optics
- Disorders of Refraction
- Concomitant Strabismus and amblyopia
- Paediatric ophthalmology
- Disorders of the Lens

Paper II: Disorders of Cornea, Conjunctiva, Uvea, Sclera and Immunity

- Disorders of the sclera
- Disorders of the uvea
- Immuno ocular disorders
- Disorders of the cornea
- Disorders of the conjunctiva

Paper III: Disorders of Adnexa, Glaucoma, Retina, Neuro-ophthalmology, Systemic and community ophthalmology and Ocular Pharmacology

- Disorders of the orbit
- Disorders of the lids
- Disorders of the lacrimal system
- Neuro-ophthalmology
- Glaucoma
- Systemic ophthalmology
- Disorders of the Retina

- h. Community ophthalmology
- i. Ocular Pharmacology

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

EACH PAPER:	Time: 3 Hours	Max Marks:100
2 LONG ESSAYS:	20 MARKS EACH -	2×20=40 MARKS
3 SHORT ESSAYS:	10 MARKS EACH -	3×10=30 MARKS
6 SHORT ANSWERS:	5 MARKS EACH -	6×5= 30 MARKS

Recent advances as applied to ophthalmic disorders can be incorporated in ALL THE PAPERS

WEIGHTAGE OF MARKS IN EACH PAPER

MS OPHTHALMOLOGY

Paper I: Basic Sciences, Refraction, Squint, pediatric ophthalmology and disease of the lens

i. Anatomy of the eye & orbit	10
ii. Ocular physiology	10
iii. Ophthalmic pathology	5
iv. Microbiology & immunology	5
v. Biochemistry relevant to ophthalmology	5
vi. Geometric and ophthalmic optics	10
vii. Disorders of Refraction	20
viii. Concomitant Strabismus and amblyopia	10
ix. Paediatric ophthalmology	5
x. Disorders of the Lens	20

Paper II: Disorders of Cornea, Conjunctiva, Uvea, Sclera and Immunity

i. Disorders of the sclera	10
ii. Disorders of the uvea	20
iii. Immuno ocular disorders	10
iv. Disorders of the cornea	30
v. Disorders of the conjunctiva	30

Paper III: Disorders of Adnexa, Glaucoma, Retina, Neuro-ophthalmology, Systemic and community ophthalmology.

i. Disorders of the orbit	10
ii. Disorders of the lids	10
iii. Disorders of the lacrimal system	10
iv. Neuro-ophthalmology	5
v. Glaucoma	20
vi. Systemic ophthalmology	10
vii. Disorders of the Retina	20

- viii. Community ophthalmology
- ix. Ocular Pharmacology

10
5

b. Clinical Examination: 150 marks

CASES	NO	MARKS	TIME FOR	
			EXAMINATION	DISCUSSION
1. LONG CASE	1	40	45 min	45 min
2. SHORT CASES	2	25 X 2	15 min X 2	15 min X 2
3. FUNDUS CASES	1	20	10 min	15 min
4. REFRACTION CASE	1	20	10 min	15 min
Total	5	130	1 hr 35 min	1 Hr 45 min

- Long case will be evaluated by all the four examiners together. Each examiner will assign marks independently for a maximum of 10 marks.
- Short, fundus and refraction cases will be evaluated by 2 examiners (1 internal and 1 external). Each examiner will assign marks independently for a maximum of 12.5 marks for short case and 10 marks for fundus and refraction case.
- Sum Total of all the marks will be the final marks.

Recommended Cases

a. Long case

- i. Neuro ophthalmology
- ii. Proptosis
- iii. Sclerokeratouveitis
- iv. Uveitis with complications
- v. Lens induced complications
- vi. Glaucoma

b. Short cases:

c. Fundus 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

d. Refraction:

D. VIVA-VOCE EXAMINATION: 50 MARKS

1. VIVA VOCE: 40 MARKS

Will be conducted at 4 stations by all 4 examiners for 10 marks each. The stations are as follows:

STATION 1: INSTRUMENTS, SYSTEMIC DISORDERS

STATION 2: X- RAYS, ULTRASOUND, CT SCAN MRI, FFA, OCT, VISUAL FIELDS, DIPLOPIA CHART, CORNEAL TOPOGRAPHY IMAGES FOR INTER- PRETATION

STATION 3: DRUGS, PATHOLOGY AND MICROBIOLOGY SLIDES

STATION 4: OPTICS & COMMUNITY OPHTHALMOLOGY

2. LOG BOOK: 10 MARKS

Maximum marks

Theory	Practical	Viva	Grand Total
300	150	50	500

VIII. RECOMMENDED BOOKS AND JOURNALS TEXTS:

Recommended books:

- Duane's System of Ophthalmology
- Jakobiec Series
- Peyman's Series
- Pathology gross specimens Duke-Elder's System of Ophthalmology
- American Academy Series
- Yanoff and Duker - Ophthalmology
- Jack Kanski: Clinical Ophthalmology
- Parsons Diseases of the eye
- Clinical Eye Atlas by Lewis
- Wills Eye Manual
- Wills 5 minute Ophthalmology Consult
- Moorfields Manual of Ophthalmology
- Ocular surface disorders – Castillo and Iemp
- Handbook of Clinical trials in Ophthalmology – AK Gupta
- Clinical Practice patterns in Ophthalmology – SankaraNetralaya
- Decision making in Ophthalmology – Johan Zwaan

Surgeries:-

- Cataract surgery in diseased eyes – Arup Chakrabarti
- Small Incision Cataract Surgery – KPS Malik, RuchiGoel
- Clinical Practice in Small Incision Cataract Surgery by Ashik Garg
- Basic Techniques of Ophthalmic Surgery - AAO
- Expert techniques in ophthalmic surgery – Yanoff
- Cataract surgery – Robert Steinert

Cornea:

- Smolin&Thoft
- Grayson
- Kaufman & Leibowitz

Glaucoma

- Practical Guide to interpret Visual Fields – GR Reddy
- ISGS Textbook of Glaucoma Surgery
- Wills eye institute – color atlas & synopsis
- Gonioscopy – A text and atlas by Tanuj Dada
- Glaucoma Vol1 and Vol 2 by Tarek Shaarawy
- Bruce Shields Text Book of Glaucoma
- Krupin& Shields Series on Glaucoma
- Becker & Schaeffer's Text Book of Glaucoma
- Anderson's Computerised Perimetry
- Harrington's Text Book of Perimetry
- Leiberman and Drake : Computerised perimetry

Retinal disease:

- Retinal Atlas by Yannuzzi
- Atlas of OCT of Macular diseases and Glaucoma by Vishali Gupta
- Step by Step Vitrectomy by Martinez- Toldos
- Principles and practices of V.R. Surgery by Narendran V
- Stephen Ryan's Retina
- Ron Michel: Retinal Detachment
- Steve Charles: Basic Vitrectomy

Ultra Sound:

- Ophthalmic Ultrasound by Singh and Hayden
- Atlas of ophthalmic ultrasound and US biomicroscopy – SankaraNetralaya
- Byrne & Ronald Green: Ophthalmic Ultrasound

Uvea:

- Atlas of Uveitis & Scleritis by SankaraNetralaya
- Nussenblatt& Palestine
- Diagnosis & Treatment of Uveitis by Jakobiec
- Smith & Nozik

Neuroophthalmology:

- Walsh & Hoyt
- Step by Step Neuroophthalmology Clinical Examination and Diagnosis – Satya Karna

Orbital diseases:

- 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

Oculoplastics

- Wills eye institute – color atlas & synopsis
- Step by Step Oculoplastic surgery – Dr. Agarwal's
- Clinical Atlas of Procedures in Ophthalmic and Oculofacial Surgery - Albert
- Ptosis Surgery – Arnab Biswas

Strabismus:

- Gunter von Noorden
- Wills Eye Strabismus Atlas
- Mein & Trimble

Ophthalmic Pathology:

- Yanoff & Fine
- Zimmerman

Pharmacology:

- Roy and Fraunfelder's Current Ocular Therapy

Anatomy:

- Wolff
- Snell's

Physiology:

- Adler's Physiology of the Eye

Biochemistry:

- Standard text books

Immunology:

- Ocular immunology

Paediatric ophthalmology

- Pediatric Ophthalmology & Strabismus by Hoyt & Taylor
- Pediatric Retina by Mary Hartnett
- Pediatric Ophthalmology by Nelson and Olitsky
- Pediatric Ophthalmology surgical and medical management by Ashok Garg
- Kenneth Wright

Refraction:

- Duke Elder's practice of refraction
- Elkington & Frank

Trauma:-

- Eye Trauma by Shingeleton
- Ocular Trauma clinical diagnosis and management by Ashok Garg

Indexed Journals:

1. Survey of Ophthalmology
2. Journal of Current Glaucoma practice
3. British journal of Ophthalmology
4. Indian journal of Ophthalmology
5. American journal of Ophthalmology

ANNEXURE 1.

OPHTHALMOLOGY POSTGRADUATE TRAINING 'LOG BOOK'

Contents:

1. Personal Data:

Name
 Institution
 Dates of Postgraduation studies
 Joining
 Completion
 Degree
 Deemed to be University
 Name and Designation of Guide
 Signature of candidate
 Signature of Supervisor
 Signature of Head of Department

2. Clinical Postings:

Speciality	Duration	Dates of Posting	Remarks by faculty	Any interesting Case/difficult case
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3. Case Presentations: (eg. Clinics, tutorials)

Date	Name/age/sex	Problem/Diagnosis	Grade	Moderator
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4. Seminars: (eg. Seminar on TB)

Date	Topic of Presentation	Grade	Moderator
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5. Journal clubs

Date	Topic of Presentation	Grade	Moderator
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6. Morbidity meetings:

Date	Name/age/sex	Problem/Diagnosis	Moderator
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7. Guest lectures/ inter departmental teaching:

Date	Topic	Departments involved
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8. Community Activity:

Date	Description of Activity	Supervisor
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9. Paper Presentation: (Local, State, National, International Forum)

Date	Title of Paper presented	conference	Supervisor
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10. Undergraduate Classes taken by MScandidate: (eg. Didactic lecture or clinic)

Date	Topic	Supervisor
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11. Academic Meetings, CMEs and Conferences attended: (Extra mural, Local, State, National, International Forum)

Date	Title	Organization
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12. Training Courses:

Date	Title	Supervisor
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13. Side lab procedures:

Date	procedure	interpretation	supervisor
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14. Procedures:

Date	name/age/sex	procedure	diagnosis	supervisor
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