Republic of the Philippines
OFFICE OF THE PRESIDENT
COMMISSION ON HIGHER EDUCATION

CHED MEMORANDUM ORDER (CMO)
No. 38
Series of 2007

SUBJECT: POLICIES AND STANDARDS FOR OPTOMETRY EDUCATION

In accordance with pertinent provisions of Republic Act (RA) No. 7722, otherwise known as the "Higher Education Act of 1994", and in view of CEB Resolution No. 180-2007 dated March 12, 2007, for the purpose of rationalizing Optometry Education in the country and keeping apace with the demands of global competitiveness, the following policies and standards for Optometry Education are hereby adopted and promulgated by the Commission, thus:

Article I
INTRODUCTION

Section 1.

The degree of Doctor of Optometry shall be an academic undertaking recognized in the Philippines which is locally and globally accepted. It shall be the minimum standard by which schools measure their performance in terms of optometry development. Symbol of quality shall be competence, ethical values, teamwork and ability of students to respond to the patient needs in the eye health care delivery system.

It aims to develop optometry students who are professionally competent with desirable personal traits through leadership in education, research, industry, clinical field of specialization and commitment to serve the eye health care needs of the country and of the local and global community.

Section 2. **Objectives.**

The main objective of the Optometry Education is to provide the country with Optometrists who possess:

1. High level of competence to deliver the full spectrum of optometric services, which consist of: the prevention, examination and evaluation, diagnosis, management and rehabilitation of disorders, dysfunctions and diseases of the visual system, the eye and associated structures;

2. A mastery of a core knowledge in optometry and related medical sciences, and sufficient thinking abilities to analyze new information as to continually add to this knowledge base;

3. The qualities, attitudes and values essential to the delivery and promotion of eye care service to the Filipino people; and

4. The desire to improve optometry by advancing the knowledge, skills and values of the profession with exposure through practicum.

To achieve this objective, there shall be a well-planned Basic and Professional Program for optometric education that meets established local and international competitive standards. The Program should be Competency, Research and Problem-based, leading towards Primary Care Optometry and the basics of the Specialty Fields in optometry. The program therefore should:

1. Provide optometry students with an academic and clinical environment conducive to the acquisition of knowledge, skills, attitudes and values, with emphasis on the development of creative and critical thinking;
2. Provide the students with adequate facilities and competent instruction in all subjects;
3. Prepare and train students to appreciate and undertake research;
4. Train the students for service to the patients as well as to the community, as a recognized member of the Health Care Team;

    - This training should enable the student to function in an inter-professional referral network in the health sciences through an internship and externship program in accredited private, industrial and school clinics, hospitals, and community health centers;

    - This training should be holistic as to include the preventive, promotive and restorative aspect of eyecare;

    - Provide an environment where values and attitudes conducive to professionalism, smooth inter-professional relations, understanding and cooperation are developed by role-modelling.

Article II
AUTHORITY TO OPERATE

Section 3. All private higher education institutions (PHEIs) intending to offer the Doctor of Optometry program must first secure

proper authority from the Commission in accordance with existing rules and regulations. State universities and colleges (SUCs), and local colleges and universities should likewise strictly adhere to the provisions in this policies, standards and guidelines.

Article III
PROGRAM SPECIFICATIONS

Section 4. Degree Name. The degree of Doctor of Optometry is conferred upon the completion of a baccalaureate program of at least six (6) years. This program is offered in a college or university duly recognized by the Commission on Higher Education.

Section 5. Program Description.

The Doctor of Optometry program pursuant to Republic Act No. 8050 Section 19-c, is a degree obtained from a college, university or institution duly accredited by the government after passing at least a six-year program offering the following minimum basic subjects: mathematics, general and organic chemistry, practical and mechanical optics, psychology, physics, physiological optics, pharmacology, theoretical optics, practical optometry, sociology, applied psychology, general anatomy, physiology, general histology and embryology, ocular anatomy and physiology, general pathology, ocular pathology, biochemistry, microbiology, clinical optometry, theoretic optometry, and visual fields, research methods, optometric ethics and jurisprudence, optometric economics and practice management, hygiene, sanitation and public health optometry and low vision and pediatric optometry.

Section 6. Specific Careers/Professions/Occupations or trades that graduates of this program may engage in the following professions:

1. Optometrist
2. Ocularist
3. Ophthalmic Assistant
4. Industrial Optometrist
5. Optician
6. Researcher/Epidemiologist
7. Academician
8. Industry/Clinical Consultant
9. Entrepreneur
10. Optometric Journalist
11. Orthoptist
12. Refractionist

Article IV
COMPETENCY STANDARDS

Section 7.

1. The clinician will have a sound foundation in the physical, chemical, mathematical and biological sciences, and in particular have a good knowledge and understanding of human biology; understand the passage of light through lenses and optical systems (including the eye) and are able to predict and measure the nature and quality of optical images; have a thorough knowledge and understanding of the performance and function of the human visual system;

2. The clinician should have developed a very high level of skill with optometric procedures and will be competent in the identification, diagnosis and resolution of patient visual problems, understand the dysfunctions and diseases of the eye and visual system and know their genesis, natural course, treatment and prognosis; have acquired skill in the techniques necessary for the examination of the eye and the assessment of visual function;

3. The clinician should have developed skills in research, problem identification, in deciding on effective strategies to gather information for the resolution of these problems, in weighing evidence prudently and in making decisions, and are able to apply these skills to scientific problems in the visual and clinical sciences as well as to particular problems presented by patients.

4. The clinician must be skilled in patient communication and have a well developed sense of their ethical, professional and legal responsibilities. have developed the interpersonal and communication skills necessary in relationships with patients and professional colleagues and for the communication of the results of scientific enquiries; are professionally competent in the practice of optometry and are able to gain registration by the appropriate professional body

5. The clinician should be able to examine and manage visual problems in the different centers of rotation and attendance at clinical demonstrations of patients exhibiting unusual clinical features.

6. Legal & Ethico-Moral Responsibility

A. The clinician should have the knowledge, skill and attitude to enable adaptation to scientific, technological and social change, have a sense of intellectual curiosity and a desire for life-long learning, and a capacity to be creative and innovative; have a strongly developed sense of professional and ethical responsibility for patients, colleagues and the community generally, and are aware of the moral and legal responsibilities of professional practice.

B. The clinician should be able to adhere to practice in accordance with the R.A. No. 8050 and its Implementing Rules & Regulations and other relevant legislation.

Article V
CURRICULUM

Section 8.

Higher Education Institutions offering the Doctor of Optometry must conform with the standard curriculum under this CMO provided that program innovations shall be subject to prior review and approval by the Commission.

The curriculum for the degree of Doctor of Optometry should satisfy the following minimum requirements:

a) Outline and Total Units of General Education (GE) courses: 90units

Language and Humanities		**24 units**
English 1 & 2 (Communication Skills 1 & 2)	6	
English 3- (Speech & Oral Communication)	3	
English 4-(Basic Research with Scientific Writing)	3	
Filipino1 & 2	6	
Philosophy of Human Person	3	
Logic and Critical Thinking	3	
Mathematics, Natural Sciences & Information Technology		**34 units**
Mathematics (College Algebra)	3	
Basic Statistics	3	
General Chemistry 3/2	5	
Biology with Science, Technology & Society	3	
Physics	3	
Information Technology (Computer Science)	3	
Human Anatomy and Physiology 3/2	5	
Microbiology and Parasitology 3/1	4	
Biochemistry	5	
Social Sciences		**12 units**
Psychology (General)	3	
Sociology/Anthropology	3	
Philippine History	3	
Health Economics with Taxation & Land Reform	3	
Mandated Subjects		**6 units**
Philippine Governance & Constitution	3	

Life, Works & Writings of Rizal	3	

Physical Education and NSTP **14 units**

Physical Education 1,2,3 and 4 (2 units each)	8	
National Service Training Program 1 & 2 (3 units each)	6	

b) Outline and Total Units of Professional courses **150 Units**

A.	MEDICAL SCIENCE (MS)		**19**
	1. General Medical Science		
	Regional Anatomy and Physiology ……. (Head and Neck)	5 (3lec/2lab)	
	Human Anatomy and Physiology	5 (3lec/2lab)	
	General Pathology	4 (3lec/1lab)	
	General Pharmacology	2 (2lec)	
	Optometric Medicine..	3 (3lec)	
	2. Ocular Medical Science		**13**
	Ocular Anatomy and Physiology	4 (3lec/1lab)	
	Ocular Disease 1	3 (3lec)	
	Ocular Disease 2 (Ocular Emergencies)	3 (2lec/1lab)	
	Ocular Pharmacology	3 (2lec/1lab)	
B.	VISUAL SCIENCES (VS)		**51**
	Theoretical Optics	7(5ec/1lab)	
	Physiological Optics.	6 (5lec/1lab)	
	Theoretical Optometry	3 (lec)	
	Neuro-Optometry/ Neuro-Anatomy.	4 (3lec/1lab)	
	Binocular Vision	5 (3lec/2lab)	
	Refraction	4(2lec/2lab)	
	Low Vision and Geriatric Optometry	3 (lec)	
	Optometry Practice 1 . . . . . (Practical Optometry 1)	3 (1lec/2lab)	
	Practical and Mechanical Optics	3 (2lec/1lab)	
	Pediatric Optometry	3 (lec)	
	Optometry Practice 2 (Practical Optometry 2)	3 (1lec/2lab)	
	Contact Lens	4 (3lec/1lab)	
	Public Health and Environmental Optometry	2 (lec)	
	Applied Optics	2 (1lec/1lab)	
C.	CLINICAL SCIENCE		**54**
	Clinic and Conference 1 (Differential Diagnosis 1)	5 (3lec/2clinic)	
	Clinical Contact Lens	4 (2lec/2clinic)	
	Clinical Orthoptics and Pediatrics	4 (3lec/1clinic)	
	Clinical Geriatic Optometry and Low Vision	3 (2lec/1clinic)	

	Clinical Neuro-Optometry	3 (2lec/1clinic)	
	Clinic and Conference 2	5 (3lec/2clinic)	
	Occupational and Industrial Optometry .	2 (1lec/1clinic)	
	Ocular Prosthetics	3 (1lab/2clinic)	
	Vision Training and Sports Vision	2 (1lec/1clinic)	
	Optometric Rehabilitation	3 (2lec/1clinic)	
	Community and Hospital Optometry 1	6 (1lec/5clinic)	
	Community and Hospital Optometry 2	14 (clinic)	
D.	RESEARCH AND SCIENTIFIC		**9**
	Optometric Research 1(Research Proposal)	3 (2lec/1lab)	
	Optometry Research 2 (Data Collection and Research Presentation)	3 (1lec/2lab)	
	Seminar 1 (Current Issues and Trends in Optometry)	2 (lec)	
	Seminar 2 (Case Presentation)	1 (lec)	
E.	LEGAL, MANAGEMENT & OTHERS		**4**
	Optometry Ethics and Jurisprudence . .	2 (lec)	
	Optometry Economics and Practice . . . Management	2 (lec)	

Section 9. Sample Program of Study

DOCTOR OF OPTOMETRY

PROTOTYPE CURRICULUM

PRE-OPTOMETRY
FIRST YEAR

1ST Semester

UNITS

COURSES		Units		
		Lec	**Lab**	**Total**
GE	English 1 (Communication Skills)	3	0	3
GE	Filipino 1(Sining ng Pakikipagtalastasan)	3	0	3
GE	Logic and Critical Thinking	3	0	3
BS	General Psychology	3	0	3
BS	Math 1 (General Algebra)	3	0	3
BS	Chemistry 1 (Gen. Chemistry)	2	1	3
VS	Introduction to Optometry and History of Optometry	2	0	2
GE	P.E 1	2	0	2
GE	NSTP	3	0	3
			TOTAL	**24**

2nd Semester

COURSES		Units		
		Lec	**Lab**	**Total**
GE	English 2 (Scientific Writing)	3	0	3
GE	Filipino 2 (Pagbasa at Pagsulat)	3	0	3
BS	Math 2 (Basic Statistics)	3	0	3
BS	Chemistry 2 (Organic Chemistry)	3	1	4
GE	Philosophy of the Human Person	3	0	3
BS	Zoology & Botany	3	1	4
GE	Physical Education 2	2	0	2
GE	NSTP 2	3	0	3
			TOTAL	**25**

Second Year

1ST Semester

COURSES		Units		
		Lec	Lab	Total
GE	Philippine History & Government with New Constitution	3	0	3
GE	English 3 (Speech & Oral Communication)	3	0	3
BS	College Physics	3	2	5
BS	Computer Science	3	0	3
GE	Biology 2 (Human Anatomy & Physiology)	3	2	5
GE	Physical Education 3	2	0	2
			TOTAL	21

2nd Semester

COURSES		Units		
		Lec	Lab	Total
GE	Basic Research with Technical Writing	3	0	3
GE	Basic Statistics	3	0	3
GE	Sociology, Anthropology with Family Planning	3	0	3
GE	Life, Works & Writings of Rizal	3	0	3
GE	Health Economics with Taxation and Land Reform	3	0	3
BS	Human Histology and Embryology	2	1	3
GE	Physical Education 4	2	0	2
GE	Biochemistry	3	2	5
			TOTAL	25

PROTOTYPE CURRICULUM

OPTOMETRY PROPER

FIRST YEAR

1st Semester

COURSES		Units		
		Lec	Lab	Total
	Regional Anatomy and Physiology (Head and Neck)	3	2	5
	Theoretical Optics	5	2	7
	Theoretical Optometry	3	0	3
	Physiological Optics	5	1	6
				TOTAL 21

2nd Semester

COURSES		Units		
		Lec	Lab	Total
	Human Anatomy and Physiology	3	2	5
	Ocular Anatomy and Physiology	3	1	4
	Neuro-Optometry/ Neuro-Anatomy	3	1	4
	Practical and Mechanical Optics	2	1	3
	General Pathology	3	1	4
				TOTAL 20

SECOND YEAR

1st Semester

COURSES		Units		
		Lec	Lab	Total
	Ocular Disease 1	3	1	4
	General Pharmacology	2	0	2
	Binocular Vision	3	2	5
	Optometry Practice 1 (Practical Optometry 1)	1	2	3
	Refraction	2	2	4
	Applied Optics	1	1	2
	Optometry Ethics and Jurisprudence	2	0	2
				TOTAL 22

2nd Semester

COURSES		Units		
		Lec	Lab	Total
	Ocular Pharmacology	2	1	3

	Optometry Practice 2 (Practical Optometry 2)	1	2	3
	Low Vision and Geriatric Optometry	3	0	3
	Ocular Disease 2 (Ocular Emergencies)	2	1	3
	Contact Lens	3	1	4
	Pediatric Optometry	3	0	3
	Optometry Economics and Practice Management	2	0	2
			TOTAL	**21**

THIRD YEAR

1st Semester

COURSES		**Units**		
		Lec	**Lab**	**Total**
	Clinic and Conference 1	3	2	5
	Clinical Contact Lens	2	2	4
	Clinical Orthoptics and Pediatric Optometry	3	1	4
	Clinical Geriatric Optometry and Low Vision	2	1	3
	Clinical Neuro-Optometry	2	1	3
			TOTAL	**19**

2nd Semester

		Units		
		Lec	**Lab**	**Total**
	Clinic and Conference 2	3	2	5
	Occupational and Industrial Optometry	1	1	2
	Ocular Prosthetics	1	2	3
	Vision Training and Sports Vision	1	1	2
	Optometric Rehabilitation	2	1	3
	Public Health and Environmental Optometry	2	0	2
	Optometric Research 1(Research Proposal)	2	1	3
			TOTAL	**20**

FOURTH YEAR

1st Semester

COURSES		**Units**		
		Lec	**Lab**	**Total**
	Community and Hospital Optometry 1	1	5	6

	Seminar 1 (Current Issues and Trends in Optometry)	2	0	2
	Optometry Research 2 (Data Collection and Research Presentation)	1	2	3
	Optometry Medicine	3	0	3
			TOTAL	**14**

2nd Semester

COURSES		**Units**		
		Lec	**Lab**	**Total**
	Community and Hospital Optometry 2	0	14	14
	Seminar 2 (Case Presentation)	1	0	1
			TOTAL	**15**

Article VI
COURSE SPECIFICATIONS
(REFER TO ANNEX "A")

Section 10. Course Specifications

Article VII
OTHER REQUIREMENTS

Section 11. Program Administration

- Dean
- Unit/Department Chair
- Qualifications of a dean and department chair
- Responsibilities of a dean and department chair+

Optometry Schools shall be under the direct administration and supervision of a duly appointed full-time Dean who possesses the following qualifications:

a. Doctor of Optometry with at least Master's Degree in Optometry, Master of Arts in College Teaching, Master of Arts in Teaching, Allied Sciences, Education, Administration or Management;
b. Registered optometrist with current PRC identification card;
c. Must have teaching experience or a faculty member in a school or college of optometry for at least five (5) years;
d. Must be in active practice for at least ten (10) years;
e. Must display qualities of leadership and management skills; and
f. Must be of good moral character.

The general functions and responsibilities of the Dean of College of Optometry are:

1. Assists the administrators to attain institutional goals, e.g. instructions, research, community extension services and all related matters;

2. Manages curriculum development programs;

3. Develops a rational faculty, academic and non-academic load;

4. Leads faculty and staff development programs;

5. Manages human, financial and physical resources;

6. Administers student services including admission and placement services;

7. Collaborates with the health services, affiliation agencies and other academic units in the implementation of instructional programs;

8. Initiates research and community projects;

9. Establishes internal and external linkages;

10. Obtains recognition/accreditation of the optometry program

Section 12. Faculty Requirements. Each faculty shall have academic and clinical preparations appropriate to teaching assignments. For this reason, the following faculty qualifications must be developed within two years from implementation of this Policies, Standards and Guidelines; provided that those who have taught for more than 5 years may neither comply nor teach new subjects without appropriate qualifications:

a) GENERAL EDUCATION (GE): Qualifications set by CHED;

b) BASIC SCIENCES (BS): At least a Master of Science in the related subject;

c) MEDICAL SCIENCES (MS) –Registered Medical doctors and allied health practitioners can teach General Medical and Ocular Medical courses in VISUAL SCIENCES (VS) : Registered optometrist in good standing with the Professional Regulation Commission (PRC) and with a Master's Degree in Optometry, Clinical Optometry or the Visual Sciences;

d) CLINICAL SCIENCES (CS):

- Registered Optometrist in good standing with the Professional Regulation Commission (PRC) and Diagnostic Pharmaceutical Agents (DPA) certified;

- General Clinical : preferably a Fellow from a peer-recognized institution and must be in professional and ethical practice for at least two (2) years;

- Specialty Field : preferably an expert in the specialty field or peer-recognized institution and must be in professional and ethical practice for at least two (2) years

- In order to ensure high quality of instruction faculty members are expected to prepare and develop his new teaching materials and continually enrich old ones. He/she is also required to read scientific publications, interact with colleagues , undertake research and publish its results at reputable journals and publications, attend seminars and post graduate courses.

Section 13. Instructional Standards.

Institutions must strive to attain and maintain local and globally competitive standards.

a) Sound and dynamic administrative policies
b) Competent and motivated faculty
c) Updated and dynamic standard curricular contents
d) Updated and complete library, multi-media, computer and internet facilities
e) Updated and complete laboratory and clinical equipment and facilities
f) Adequate and comfortable physical facilities
g) An atmosphere of true academic freedom

To ensure quality of instruction the following minimum ratio of faculty to student must be observed:

Lecture	1:40
Laboratory	1:20
Clinical	1:10
Clinic/ Hospital/ Community Proctorship	1:5
Research Advising	1:5

The quality of clinical instruction is highly dependent on competent guidance from clinical instructors/proctors and hands-on real-life clinic

experiences on a wide spectrum of patients, procedures, instruments and situations, when acting alone or working within a multi-specialty referral system. For this reason, the following guidelines on clinical instruction and clinical experiences is given:

1. Clinical Instruction
   a) Faculty qualifications should be strictly implemented
   b) Problem Based solving approach should guide organization of facilities and procedures and protocols
   c) Students should be rated according to measurable clinical competencies,
   d) appropriate teaching methodology should be implemented for clinical courses

2. Clinical Experiences
   a) All facilities and instruments are meant to be used by the students in the course of their clinical work.
   b) Students are expected to acquire their individual portable instruments for use in training. However, additional movable and fixed instruments should be provided by the school as listed in Appendix A. An ideal facility-student ratio:

      - Consultation Room and facilities: 1:10
      - Refraction Room and facilities: 1:10

   c) Institutions offering optometry program should have the following Clinical sites:

      1. Open Clinic: Clinic open to the public and operated as a model professional optometric clinic. Proper filing of patient record is done and patients return for follow-up visits.

      2. Affiliated Hospitals: Hospitals who will accept student rotation in selected medical departments as well as in the different services of the ophthalmology department pursuant to CMO No. 19 s. 2004 (Clinical Guidelines for Optometry Externship Program).

      3. Affiliated Health Centers or RHUs and accredited model industrial clinics, private general optometric clinics, and optometric specialty clinics pursuant to CMO No. 19 s. 2004.

Section 14. Library Requirements

A. Policy

Library services shall provide the instructional and research needs of the staff and students making it one of the most important utilized service units within a higher education institution (HEI). It is for this reason that libraries should be given special attention by the HEI administrators by maintaining it with a wide and up-to-date collection, qualified staff and communications and connectivity portals.

B. Library Staff

The Head librarian should be 1) registered librarian with Master's degree 2.)have an appropriate professional training;

The library should be 1) staffed with one full time professional librarian for every 1,000 students and 2) ratio of 1 librarian to 2 staff/clerks should be observed.

C. Library Holdings

Library holdings should conform to existing requirement for libraries. There should have 5 book titles per professional subject found in the curriculum at a ratio of 1 volume per 15 students enrolled in the program. These titles must have been published within the last 5 years. The HEI shall likewise encourage to maintain periodicals and other non-print materials relevant to the optometry program to aid the faculty and students in their academic work. CD-ROMs could complement a library's book collection but should otherwise not be considered replacement for the same.

The selection shall also include an extensive Filipiniana collection to meet the increasing demand of users for this type of materials. A comprehensive acquisition of current Filipiniana titles relevant to the school's curriculum is strongly recommended. It is recommended that this Filipiniana collection be separated from the general collection for purposes of identity, preservation, and functionality of use.

A regular weeding out program shall be undertaken to keep the collection relevant and up-to-date for the last five (5) years. Archived collection shall not consist of not more than 30% of the total collection.

D. Internet Access. Internet access is encouraged but should not be made a substitute for book holdings.

E. Space Requirements.

At least 125 square meters or approximately 2 classrooms shall be required for the library. It should include space for collections, shelving areas, stockroom, office space for staff and reading area.

F. Finance

All library fees should be used exclusively for library operations and development for collections, furnitures and fixtures, equipment and facilities, maintenance and staff development.

G. Networking

Libraries shall participate in inter-institutional activities and cooperative programs whereby resource sharing is encouraged.

H. Accessibility

The library should be accessible to all and should be open to serve the needs of users even beyond class hours.

I. Subscription

There shall be a regular subscription to at least three (3) professional foreign and/or local optometric/ophthalmic journals in the following areas:

a. Contact Lens
b. Practice Management and Jurisprudence
c. Low Vision
d. Optometry Research
e. Optics
f. Ocular Diseases

The following are the minimum requirements for the library quarters:

a. The building shall provide adequate space for housing the library's collection in whatever format, for study and research, and for staff workroom and offices. In addition, provision for future expansion should be made.

b. The library should be accessible to members of the faculty, students and employees of the institution.

c. The facilities shall be attractive and designed to provide safety, and promote operational efficiencies and effectiveness of use.

d. Suitable space for staff workroom, offices, lounge should be available.

e. The library should be adequately lighted, properly ventilated, and acoustically suited for quiet reading, aesthetically attractive and properly maintained.

Section 15. Laboratory, Clinical and Other Facilities.

The requirements for laboratory, clinical and other facilities are listed in Appendix A of this Policies and Standards.

Section 16. Special Pharmacology Course.

1. Pursuant to the provisions of Section 31 of Republic Act 8050, optometrists who have not taken the six-year curriculum may take a course in pharmacology to be prescribed by the Commission on Higher Education and pass a special certification examination to be administered by the Board of Optometry, if they wish to use specific diagnostic pharmaceutical agents.

2. This pharmacology course maybe taken in any college and university offering these course, provided that the faculty member teaching the courses are qualified as described in Article VI of this Policies and Standards. Extension classes offered by level III accredited program shall be allowed provided the same faculty qualifications as above is observed. (attached guidelines for extension classes)

3. The Special Pharmacology Course shall consist of the following didactic studies/subjects:

Courses	Lec	Lab	Units	Hours
Biochemistry	2	0	2	36
General Pharmacology	2	0	2	36
Ocular Pharmacology	3	1	4	108
TOTAL	7	3	10	180

4. Preceptorial course shall consist of 108 hours of clinic attendance ***equally divided*** under the supervision of a DPA Licensed Optometrist with an active specialty optometry practice in accordance with Article XI of CMO No. 19 s. 2004 “Guidelines for the Optometry Clinical Practicum/Externship Program and a Diplomate in Ophthalmology who will issue a Certificate of Attendance and Proficiency in the use of DPAs to successful trainees.

Course Description

a. The didactic course is designed to equip the optometrist with a working knowledge of:

- the basic biochemical sciences necessary for the understanding of pharmacology and;
- the basic principles of pharmacology, the action and uses of pharmacologic agents specially those used in eyecare.

b. The preceptorial course is designed to train the optometrist in the actual use of DPAs in a clinical setting.

End Competencies

a. At the end of the didactic course, the optometrist is expected to have an understanding of the pharmacologic properties of the pharmaceutical agents especially those used in eye care;

b. At the end of the preceptorial training, the optometrist is expected to be competent in the use of DPAs.

The implementation of this Special Pharmacology Course shall be from the effectivity of this Policies and Standards.

Section 17. Admission, Selection and Retention

The applicant for admission to a degree program in Optometry must have :

- graduated from a general secondary course from a school authorized by the government;
- satisfactorily complied with the admission requirements of the school;
- never been convicted or found guilty of any criminal offense and/or any misconduct involving moral turpitude.

As a general rule, no applicant shall be enrolled in the Optometry program unless he/she presents the required school pertinent documents before the end of the enrolment period.

Article VIII
REPEALING CLAUSE

Section 18. This Order supercedes all previous issuances concerning optometry education which may be inconsistent or contradictory with any of the provisions hereof.

Article IX
EFFECTIVITY CLAUSE

Section 20. This set of Policies and Standards for Optometry Education shall take effect beginning school year 2008-2009.

(SGD)CARLITO S. PUNO, DPA
Chairman

Pasig City, Philippines
June 27, 2007

Annex "A"
Course Specifications

Course Name	:	**REGIONAL ANATOMY AND PHYSIOLOGY (EMPHASIS ON THE HEAD AND NECK)**
Course Description	:	This course deals with the study of the human body by region with emphasis on the structure and functions of the head and neck as they relate to the structure of the eye and their clinical correlations using preserved cadavers/models.
Course Credit	:	5 units (3 units lecture; 2 units laboratory)
Contact Hours	:	3 lecture hours; 6 hours laboratory per week
Pre-requisite	:	Biology 2 (Human Anatomy and Physiology)
Placement	:	1st year/ 1st semester, Opto 1 proper
Course Objectives	:	At the end of the course, the student should be able to scientifically identify the vital parts of the human body and understand the relationships among the structures of the head and neck and various systems, principally the cerebro-vascular and nervous systems, in relation to the eye.
Course Outline	:	I. Introduction to Human Anatomy a. What is Human Anatomy b. Anatomical Nomenclature II. Cells and Tissues a. Cell Structure b. Tissues i. Epithelium ii. Glands iii. Connective Tissues III. The Anatomical Systems

		a. Skeletal Systems i. Morphology ii. Skeletal Connective Tissues iii. Axial Skeleton iv. Appendicular Skeleton b. Muscle i. Major types of muscle 1. Skeletal 2. Cardiac 3. Smooth ii. Attachments of skeletal muscle iii. Form and function of skeletal muscle iv. Muscles of the head and neck v. Muscles of the trunk vi. Muscles of the upper and lower limb c. Integumental System i. Skin ii. Breasts d. Nervous System i. Introduction ii. Regional organizations of the nervous system iii. Peripheral Nervous System iv. Peripheral Apparatus of the special senses e. Cardiovascular System i. Blood Vessels ii. Thoracic Cavity and heart iii. Arterial Systems iv. Venous system v. Lymphatic systems f. Respiratory system i. Introduction ii. Nose and para-nasal sinuses iii. Larynx iv. Trachea and Bronchi v. Lungs vi. Pleura vii. Mediastinum g. Alimentary System 1. Introduction ii. Oral Cavity and Related Structure iii. Abdomen iv. Gastro-intestinal Structures h. Urinary System 1. Kidneys ii. Ureter iii. Urethra

		iv. Urinary Bladder i. Reproductive System 1. Male Reproductive Organ 2. Female Reproductive Organ j. Endocrine Systems IV. Surface Anatomy a. Head b. Neck c. Thorax d. Abdomen e. Perineum f. Back g. Upper Limb h. Lower Limb
Textbook and References	:	Grays Anatomy 1995 - Introduction to the Human Body 1997 by: G. Tortora - Essentials of Human Anatomy and Physiology- 1997 by E. Marieb - Anatomy and Physiology-1993 by G. Thibodean - Human Anatomy and Physiology-1992 by J. Creager Atlas: - Grants Atlas of Anatomy 10th Edition 1999 by Anne Agur and Ming Lee - Atlas of Human Anatomy, 2nd Edition 1999 By F. Netter Multimedia - A.D.A.M series CD-ROM (5) - Bodyworks

Course Name	:	**THEORETICAL OPTICS 1 and 2** **(GEOMETRICAL OPTICS 1 & 2)**
Course Description	:	This course deals with the study of the nature, propagation and behavior of light and different phenomena related to it. The topics include aspects of physical and geometrical optics, optics of lenses, prisms and mirrors. This course is also intended to provide an essential background in Photometry.
Course Credit	:	TO1 3 units for lecture, 1 unit for laboratory TO 2 4 units lecture, 1 unit laboratory
Contact Hours	:	TO 1 6 hours a week TO 2 7 hours a week
Pre-requisite	:	Algebra, Trigonometry, Physics
Placement	:	Optometry Proper 1 1st year/ 1st semester
Course	:	1. Cognitive

Objectives		1.1 Understand the nature, propagation and behavior of light. 1.2 Acquire enough knowledge on the fundamentals of geometrical optometry. 2. Psychomotor 1.1 Participate in laboratory exercises. 1.2 Conduct exploratory studies on the phenomena of light. 1.3 Construct devices that could be useful in the study of light. 3. Affective 3.1 Cooperate in class and group undertakings 3.2 Develop a desire to engage in research by formulating hypotheses on some aspects of light.
Course Outline	:	Theoretical Optics 1 Introduction 1. Scope and requirements of the course 2. Definition and subdivisions of Optics Nature and Propagation of Light 1. Nature and Properties of Light 2. Sources of Light (including Lasers) 3. Theories of Light 1.1 Corpuscular Theory 1.2 Wave Theory 1.3 Electromagnetic Theory 1.4 Quantum Theory Fundamentals of Geometrical Optics 4. Rectilinear Propagation of Light 1.1 Shadows and Eclipses 1.2 Full and Partial Illumination 1.3 Pinhole Cameras 5. Reflection 2.1 Types of Materials/Surfaces 2.2 Mirrors (Types) 2.3 Kinds of Reflection 2.4 Reflection at Plane Mirrors 2.4.1 Reversibility Principle in Reflection 2.4.2 Fresnel's :aw or Reflection 2.4.3 Laws of Regular Reflection 2.4.4 Characteristics of Image at Plane Mirrors 2.4.5 Equalities of Reflection 2.4.6 Minimum Size of Plane Mirror (including Sightseeing Chart) 2.4.7 Deviation at Plane Mirrors 2.4.8 Formation of Images at Two Inclined Plane Mirrors 2.4.9 Rotating Plane Mirrors

		2.5 Reflections at Curved Mirrors 2.5.1 Types of Curved Mirrors 2.5.2 Spherical Mirrors 2.5.2.1 Types and Parts of Spherical Mirrors 2.5.2.2 Wide and Narrow Aperture Spherical Mirror 2.5.2.3 Spherical Aberration in Spherical Mirror 2.5.2.4 Principal Foci of Spherical Mirror 2.5.2.5 Dioptric Power and Curvature of Spherical Mirror 2.5.2.6 Definite Behaviors of Light in Spherical Mirrors 2.5.2.7 Object-Image Relationships (Computation and Graphical Ray Tracing) 2.5.2.8 Physical and Optical Characteristics of Spherical mirrors 2.5.2.9 Practical Applications of Spherical Mirrors 6. Refraction 3.1 Pre-Requisites for Refraction 3.2 Refractive Index (Absolute and Relative) 3.3 Refraction at Plane Surfaces 3.3.1 Laws of Refraction 3.3.2 Graphical Ray Tracing for Refraction 3.3.3 Reversibility Principle in Refraction 3.3.4 Refraction by Rectangular Glass Block 3.3.5 Lateral Displacement 3.3.6 Refraction by Parallel Layers of Materials 3.3.7 Real and Apparent Depth/Thickness/Distance (Apparent Displacement) 3.3.8 Critical Angle and Total Internal Reflection Theoretical Optics 2 Continuation of the Fundamentals and Geometrical Optics Refraction 3.4 Refraction at curved surfaces (Single Spherical Refracting Interface) 1.4.1 Types and parts of Single Spherical refracting interface (SSRI)

		1.4.2 Dioptric Power and focal length of SSRI 1.4.3 Definitive behavior of light in SSRI 1.4.4 Object image relationships (computation and graphical ray tracing) 3.5 Refraction by Prisms 3.5.1 Parts of Prisms 3.5.2 Optical Properties of a prism 3.5.3 Uses of Prisms 3.5.4 Deviation of light by prism of large apical angle 3.5.4.1 Maximum amount of apical angle 3.5.4.2 Limitation on refraction through a prism 3.5.4.3 Critical angle and total internal reflection in a prism 3.5.4.4 Minimum Deviation 3.5.5 Thin Prisms 3.5.5.1 Unit of Measurement 3.5.5.2 Effects of Prism son Eye Movements 3.5.6 Dispersion of Light in a Prism 3.4.5.1 Newton's Prism Experiment 3.4.5.2 Wollaston's Experiment 3.4.5.3 Dispersive Power and Constringence 3.4.5.4 Fraunhofer Lines Lenses 1. Thin Lenses 1.1 Classifications of Thin Lenses 1.2 Parts of a Thin Lens 1.3 Location of Optical Center 1.4 Thin Lens Power 1.5 Focal Points and Focal Lengths of a Thin Lens 1.6 Definite Behaviors of Light in Thin Lenses 1.7 Physical and Optical Properties 1.8 Thin Lens System (Two Thin lenses in Contact) 2. Thick Lenses 2.1 Parts of a Thick Lens 2.2 Cardinal Points Fundamentals of Physical Optics

		1. Waves 2. Diffraction (single slit, circular aperture, limits of resolution) 3. Interference (double slit, multiple slits, thin film, anti-reflective coatings) 4. Polarization 5. Electromagnetic Spectrum (visible and invisible radiation) 6. Biological Effects of Radiation Photometry 1. Kinds of Photometry 2. Benefits of Photometry 3. Solid Angels 4. Photometric Quantities 4.1 Luminous Flux 4.2 Luminous Intensity 4.3 Illuminance 4.4 Luminance 5. Photometers Principles of Optical Instruments and the Human Eye 1. Non-visual Instruments 1.1 Camera 1.2 Projector 2. The Eye 2.1 Visual Angle and Retinal Image 3. Visual Instruments 3.1 Simple Magnifier 3.2 Spectrometer 3.3 Refractometer
Textbook and References	:	1. OPTICS : Fincham, W.H.A. London: 2. Handbook of optics: Bass, et al 3. Optics : Hecht 4. GEOMETRICAL, PHYSICAL AND VISUAL OPTICS: Keating, Michael 5. Clinical Optics: Grosvenor, Theodore and Fanin, Troy

Course Name	:	**THEORETICAL OPTOMETRY**
Course Description	:	Study of the nature, theories, courses, symptoms, distributions and prognosis of the different refractive status of the eye with application of contemporary research in physiological optics and clinical optometry; accommodative and convergence relationships, subnormal vision, asthenopia and headaches...
Course Credit	:	3 units lecture

Contact Hours	:	3 hours a week
Pre-requisite	:	Ocular Anatomy and Physiology, Physiological Optics, Theoretical Optics
Placement	:	1st year/ 1st semester
Course Objectives	:	1. The clinician should be able to understand the differences between emmetropia and ametropia and other abnormalities of the eye, its classifications, signs and symptoms and general management with study on the general patient care 2. The clinician should be able to handle patient care services, diagnose and correct all types of refractive error and other anomalies of the eye and learn the art of patient management
Course Outline	:	I. Refractive Status a. Definition of Terms b. Static and Dynamic Refraction c. Distribution and Incidence of Refractive Status d. Vitamins affecting the visual system II. Component and Correlation a. Component Ametropia b. Correlation Ametropia c. Measurement of Ocular Dimensions III. Classification of Refractive Status a. Emmetropia b. Ametropia b.1 Hyperopia b.1a Concept of development and etiology b.1b Classification by degree b.1c Symptomatology b.1d Classification according to accommodation b.1e Intervention of hyperopia b.2 Myopia b.2a Concept of development and causes of myopia b.2b Classification of myopia b.2c Classification according to degree b.2d Symptomatology b.2e Conditions associated with myopia b.2f Intervention of Myopia b.3 Astigmatism b.3a Concept and development of astigmatism b.3b Causes of astigmatism b.3c Classification of astigmatism

b.3d According to resultant astigmatism
b.3e Variation of astigmatism
b.3f Intervention of astigmatism

IV. Accommodation
- a. The Accommodative Process
- b. Theories of Accommodation
- c. Lenticular Changes
- d. Innervation
- e. Development of Accommodation
- f. Amplitude and Range of Accommodation
- g. Factors that Affect Accommodation
- h. Training the Accommodative System
- i. Anomalies of Accommodation

V. Presbyopia
- a. Definition
- b. Theories of Presbyopia
- c. Causes of Presbyopia
- d. Analysis of the Biological Components of Presbyopia
- e. Symptomatology
- f. Management and Correlation
- g. Determining the Add

VI. Anistometropia Antimetropia and Aniseikonia
- a. Definition
- b. Classification
- c. Etiology
- d. Symptomatology
- e. Effects in Reading
- f. Measurement
- g. Management and Correlation

VII. Amblyopia
- a. Definition
- b. Etiology and Risk Factors of Amblyopia
- c. Classification
  - c.1 Organic Amblyopia
  - c.2 Functional Ambylopia
  - c.3 Light deprivation Amblyopia
- d. Treatment and Management

VIII. Keratoconus
- a. Definition
- b. Etiology
- c. Symptomatology
- d. Classification according to cone size
- e. Classification according to degree
- f. Management and Correlation
- g. Corneal Topography

		h. Keratoplasty
Textbook and References	:	a. Clinical Refraction Vol. 1 by Borish 1999 b. Clinical Refraction Vol 1 by Borish 1970 c. Introduction to Ophthalmology by John Parr 1989 d. Primary Care Optometry , Grosvenor 2002 e. Refractive Management of Ametropia , Brookman 1996

Course Name	:	**PHYSIOLOGICAL OPTICS**
Course Description	:	It deals with the aspects of the retina, including light and dark adaptation, color vision, spatial and temporal resolution. The course deals with the science of measuring visual performance and its application to clinical optometry. It also deals with binocular vision, stereopsis and visual perception.
Course Credit	:	4 units (3 lec/ 1 lab)
Contact Hours	:	3 lecture hours and 3 laboratory hours per week
Pre-requisite	:	General Anatomy and Physiology; Inorganic and Organic Chemistry
Co-requisite		Theoretical Optics 1 and 2
Placement	:	1st year/ 1st semester
Course Objectives	:	In this course, the student must be able to consider various functional aspects of the human eye, utilizing the information from the theoretical optics as well as the general principles of physiology and anatomy, and present the sensory aspects of vision, binocular vision, ocular motility and color vision.
Course Outline	:	I. Characteristics of Nerve Impulse II. Retina a. anatomy and physiology b. layers of the retina c. special parts of the retina d. blood supply III. Scotopic and Photopic Vision e. Retinal Adaptation f. Characteristics of Scotopia and Photopia g. Rhodopsin and Iodopsin h. Rod Vs. Cone Vision III. Retinal Stimulation IV. Retinal Sensitivity and Visibility V. The Growth and Decay of Visual Sensations VI. Flicker VII. Adaptation and Induction VIII. Color Vision a. Theories of color vision b. Color mixing c. Color blindness and inheritance

		IX. The Extra Ocular Muscles a. Origin and Insertion b. Blood Supply and Nerve Supply c. Actions d. Movements e. General Considerations in Muscles f. Innervation Control XI Binocular Vision a. Definition b. Pre-Requisites of Binocular Vision c. Horopter d. Cyclopean Eye e. Retinal Rivalry f. Panums Area g. Advantages of binocular vision compare over monocular vision XII Accommodation and Convergence a. Definition b. Measurement and Computation of Amplitude c. Positive and Negative Accommodation and Convergence d. Relative Accommodation and Convergence e. Relation and Accommodation and Convergence f. Tests for Binocular Vision XIII Orthophoria, Heterophoria and Hetereotropia a. Definition of Terms b. Tests for Orthophoria and Heterophoria c. Causes of Heterotropia d. Classification of Heterophoria e. Amblyopia Exanopsia XIV. Visual Efficiency a. Minimum Visible b. Minimum Legible c. Minimum Separable d. Visual Acuity e. Factors affecting visual acuity f. Ocular fatigue g. Eyestrain XV. Depth Perception: Stereopsis a. Monocular depth perception b. Binocular depth perception c. Binocular parallax XVI. Visual Projection and Space Perception a. Mental space system b. Origin of neural activities c. Lotze's signs d. Nativistic Theory e. The Empirical Theory

		XVII. Perception of Motion and Illusions a. Acuity of the perception of movement b. Origin of perception of movement c. Autokinetic movements d. Illusions e. Errors in Perception
Textbook and References	:	a. Physiologic Optics by Zoethout b. Clinical Refraction Vol. 1 and 2 by Irvin Borish (1970 and 1999) c. Introduction to Ophthalmology by John Parr.

Course Name	:	**GENERAL HISTOLOGY AND EMBRYOLOGY**
Course Description	:	This course deals with the study of the microscopic anatomy of human cells, tissues, organs with histogenesis using prepared slides with special emphasis on the tissues found in the eye.
Course Credit	:	3 units (2 units for lecture, 1 unit for laboratory)
Contact Hours	:	2 lecture hours, 3 laboratory hours per week
Pre-requisite	:	
Placement	:	1st year/ 2nd semester
Course Objectives	:	To identify the different histologic structures of the human tissues and appreciate their importance in relation to clinical practice.
Course Outline	:	A. The Anatomical Systems i. Locomotor System ii. Cardiovascular and Nervous Systems iii. Digestive and Respiratory Systems. iiii. Urogenital System and the Skin iiiii. Reproductive System B. Introduction to Histology i. Microscopy ii. Preparation of tissues iii. Examination and interpretation of sections iiii. Stains iiiii. Histochemistry C. Histology of Primary Tissues i. Cell ii. Epithelium iii. Connective Tissues iiii. Adipose Tissue iiiii. Specialized connective tissues a. Cartilage b. Bone c. Blood iiiiii. Muscle iiiiiii. Nervous Tissue

vii. Circulatory systems, blood cells and hematopoiesis
viii. Urinary System
ix. Gastrointestinal tract
x. Liver, pancreas, gallbladder, respiratory system
xi. Ear, eyes

D. Regions of the Body
I. Head and Neck
1. Scalp
a. Anatomy
b. Histology
2. Bones of the skull, their parts and interrelationships with one another
a. Anatomy
b. Histology
3. Interior of Skull (Anatomy and Histology)
a. Blood Supply
b. Layers of the Dura Mater
c. Meningeal Arteries and Nerves
d. The Brain
e. Cranial Nerves and its Relationship to the Arteries of the Brain
f. Base of the Skull
4. Face (Anatomy and Histology)
a. Facial muscles and their innervations
b. Facial sensory nerves
c. Facial blood supply
5. Orbital Cavity (Anatomy and Histology)
a. Description of the parts and their interrelationships
b. The eyelids
c. Extraocular muscles
d. Orbital nerve
e. Optic nerve
f. Ophthalmic vessels
g. Lacrimal apparatus
h. The eye
6. The Ear
7. The nose and para-nasal sinuses
8. The oral cavity
9. The pharynx
10. The neck, its muscles and blood supply
a. Triangles of the neck
b. Root of the neck
c. Back of the neck

II. Thoracic cage (Anatomy and Histology)

		a. Description and frame work b. Pleurae c. Lungs d. Heart and pericardium III. Abdomen (Anatomy and Histology) 1. Topography of the abdomen 2. Abdominopelvic Cavity 3. Stomach, Liver and related structures 4. Mesenteric vessels, Duodenum and Pancreas 5. Three-Paired Glands 6. Posterior abdominal structures IV. Perineum and Pelvis (Anatomy and Histology) 1. Perineum 2. Male pelvis 3. Female pelvis 4. Pelvic Autonomic Nerved and Lymphatics V. Upper extremity (Anatomy and Histology) VI. Lower extremity (Anatomy and Histology)
Textbook and References	:	Rodd, M, etal. HISTOLOGY: A TEXT AND ATLAS. 2nd ed. Williams and Williams, c. 1989 Weiss, Leon: CELL AND TISSUE BIOLOGY. 6th ed., c. 1988 Lesson et al. TEXTBOOK OF HISTOLOGY. 5th ED. W.B. Sarenders Co., c 1985 Bloom and Fawcett. A TEXTBOOK OF HISTOLOGY. 12th ed., c. 1994. Chapman and Hall Review of Gross Anatomy, 5TH ed., by Pansky, Mc. Millan Publishing Co., c. 1992 Grant's Methods of Anatomy, 10th ed., By J.V. Basmajian Williams & Wilkins, Baltimore & London c. 1980

Course Name	:	**OCULAR ANATOMY AND PHYSIOLOGY**
Course Description	:	This course deals with the detailed study of the anatomy of the eye and embryology of the eye and its adnexae, and gross structures and histologic layers of the different parts of the human eye. This also includes the study of its function, the inter-relationship of the intra-ocular tissues or structures and the correlation of each part or function in clinical application.
Course Credit	:	4 units (3 lec/ 1 lab)
Contact Hours	:	3 lecture hours and 3 laboratory hours per week
Pre-requisite	:	Human Anatomy and Physiology , Histology and Embryology
Placement	:	1st year / 2nd semester
Course Objectives	:	In this course, the student must be able to identify the anatomic structures of the eye and its neighboring adnexae. To understand its functions and its correlation in clinical application. Object covers the anatomy of the orbital cavity and its contents. This is

		principally the Eyeball but also includes the extra-ocular structures which nourish, support, mobilize and provide the neurovascular supply to the eyeball. A number of anatomical perspective's are utilized: the topographical or naked eye appearances of the orbital cavity, its contents and anatomical relations; the histology of the globe, its coats and regions; the embryological development of the eye; the neuro-anatomy of the visual pathway. The curriculum is covered by both lectures and practicums and aims to give students the anatomical knowledge they will require to evaluate and manage the visual problems patients present in clinical practice.
Course Outline	:	I. Introduction and General Scope a. Definition of terms b. The Bony Orbit b.1 parts and walls b.2 contents b.3 accessories and structures b.4 relations b.5 sinuses II. Topography of the Eye a. dimensions of the eyeball b. sagital axis and plane c. horizontal axis and plane d. equatorial axis and plane III. The Eyeball a. Overview of the Parts of the Eyeball b. Protective coat b.1 Cornea b.2 Sclera c. Vascular Coat c.1 Iris c.2 Choroid c.3 Ciliary Body d. Nervous Coat d.1 Retina IV. Dioptric Apparatus of the Eye a. Cornea a.1 dimensions a.2 contents and layers a.3 functions a.4 vascular supply a.5 nerve supply a.6 relations b. Crystalline lens b.1 dimensions b.2 layers b.3 functions b.4 relations

		b.5 Zonules of Zinn, its parts and relations b.6 nutrients and metabolism b.7 cataract c. Aqueous humor c.1 dimensions c.2 compositions c.3 functions c.4 relations c.5 nutrients and metabolism c.6 outflow d. Vitreous humor d.1 dimensions d.2 compositions d.3 functions d.4 vascular supply d.5 nerve supply d.6 relations V. Ocular Appendages a. Eyelids a.1 functions a.2 parts and layers a.3 tarsal muscles and its innervation a.4 common eyelid abnormalities b. eyebrows c. eyelashes d. conjunctive and its functions d.1 bulbar d.2 palpebral d.3 fornix d.4 tears d.4.1 production d.4.2 function d.4.3 layers e. lacrimal apparatus and drainage e.1 parts and its innervation e.2 dimensions of the parts e.3 functions e.4 secretory system e.5 excretory system VI. Ocular Motility a. The Extraocular muscles a.1 origin and insertion a.2 dimensions a.3 actions a.4 innervation a.5 blood supply a.6 relations with other muscles a.7 common abnormalities

		a.8 Herings's and Sherrington's Laws b. Palpebral and Neighboring Muscles b.1 origin and insertion b.2 dimensions b.3 actions b.4 innervation b.5 blood supply b.6 relations with other muscles VII. Development of the Eye 2. Ectodermal in Origin 2.1 neural crest 2.2 neural ectoderm 2.3 surface ectoderm 3. Mesodermal in Origin VIII. The Visual Pathway a. Optic Nerve b. Optic Chiasm c. Optic Tract d. Lateral Geniculate Body e. Optic Radiation f. Occipital Cortex g. The Distribution of the Nerve Fibers h. Common Abnormalities of the Visual Field
Textbook and References	:	Ocular Anatomy and Physiology by Trove Sauce c 1999 Ocular Anatomy of the Eye by Wolfe Clinical Ocular Anatomy by Snell Gray's Anatomy, c 1995

Course Name	:	**NEURO OPTOMETRY**
Course Description	:	This subject deals with the problems affecting the visual pathway, pupillary reflex pathway and efferent visual pathway, and discussion of perimetry and electro-physiology of the eye and other procedures.
Course Credit	:	3 units (lec)
Contact Hours	:	3 hours per week
Pre-requisite	:	Neuro-anatomy
Placement	:	1^{st} year / 2^{nd} semester
Course Objectives	:	The student should be able understand neurological defects and its effect on the to visual pathway, visual fields and its interpretation and management.
Co-requisite		Human Anatomy and Physiology with Neuro Anatomy; Ocular Anatomy and Physiology
Course Outline	:	UNIT 1: VISUAL PATHWAY AND THE VISUAL FIELD

		1.1 The VISUAL PATHWAY 1.1.1The retina 1.1.1.1 Review of the Histological Layer of the Retina 1.1.1.2 The Sensory Retina 1.1.1.3 The Nerve Fiber Layer 1.1.1.4 Contrast Sensitivity 1.1.1.5 Dark and Light Adaptation 1.1.1.6 Color Vision 1.1.1.7 Retinal Rivalry 1.1.2 The Optic Nerve 1.1.2.1 The Anatomy of the Optic Nerve 1.1.2.2 The Optic Disc 1.1.2.3 Mapping of the Disc and Disc Photography 1.1.3 The Optic Chiasma 1.1.3.1 Anatomy of the Optic Chiasma 1.1.3.2 Pituitary Gland 1.1.4 the optic tract 1.1.5 the optic radiation 1.1.6 the central nervous system 1.2 The visual field 1.2.1 Introduction 1.2.1.1 definition of terms 1.2.1.2 normal visual field 1.2.1.3 types of visual field examination 1.2.1.4 basic principles of the visual field 1.2.1.5 topographical classification of visual field defect 1.2.1.6 factors that may affect normal visual field 1.2.2 Visual field diagnosis 1.2.2.1 trobe and claser principles 1.2.2.1.1 the outer retinal defect 1.2.2.1.2 the sensory retina and optic nerve defect 1.2.2.1.3 the optic chiasmal defect 1.2.2.1.4 the post-chiasmal defect 1.2.2.2 clinical correlation of the common ocular Diseases 1.2.2.2.1 Retinitis Pigmentosa 1.2.2.2.2 Diabetic Retinopathy 1.2.2.2.3 Age-Related Macular Degeneration 1.2.2.2.4 Macular Hole 1.2.2.2.5 Central Serous Retinopathy 1.2.2.2.6 Cystoid macular Edema 1.2.2.2.7 Retinal Detachment 1.2.2.2.8 RPE Detachment 1.2.2.2.9 Chorioretinitis

		1.2.2.2.10 Glaucoma 1.2.2.2.11 Optic Atrophy 1.2.2.2.12 Optic Neuropathy 1.2.2.2.13 Cardiovascular Accident (CVA) 1.2.2.2.14 Anterior Ischemic Optic Neuropathy 1.2.2.2.15 Vascular Occlusion UNIT II: THE PUPILLARY REFLEX PATHWAY 2.1 Introduction 2.1.1 The Pathway 2.1.2 Review of the Histological Layers of the Iris 2.1.3 Principles of Consensual and direct Light Reflex 2.2 Assessment of the Afferent and Efferent Pupillary Defect UNIT III: THE EFFERENT VISUAL SYSTEM 3.1 Introduction 3.1.1 Central Nervous System 3.1.1.1 Review of the Anatomy and Physiology 3.1.2 Parasympathetic Nervous System 3.1.2.1 Review of the Anatomy and Physiology 3.2 Preliminary Assessment 3.2.1 Motility 3.2.1.1 Extra-Ocular Muscle Palsies 3.2.1.2 Gaze Palsies LABORATORY: Lab 1 Perimetry 1. Automated Tangent Screen 2. Manual Perimeter (Model: Goldmann Perimeter) 3. Automated Perimeter (Model: Octopus and Humphrey Perimeter) Lab 2 Consensual and Direct Light Reflex Lab 3 CT Scan and MRI Lab 4 Electro-retinography and Electro-oculography

Course Name	:	**PRACTICAL AND MECHANICAL OPTICS**
Course Description	:	This course is intended to give the students an understanding of the principles of ophthalmic lenses, prisms and instruments. It deals with the design, application of the ophthalmic materials, study of the physical and optical characteristics of ophthalmic single vision and multifocal lens designs, ophthalmic prism, absorptive lenses and the measurement and fitting of lenses and frames.
Course Credit	:	5 units (3 units lecture/ 2 units laboratory)
Contact Hours	:	3 lecture hours and 6 laboratory hours per week
Pre-requisite	:	Theoretical Optics, Theoretical Optometry
Placement	:	1st year / 2nd semester
Course Objectives	:	The clinician should be able to have an extensive hands-on training on lens neutralization, frame adjustment and mechanical

		procedures such as bench work, edging and lens surfacing
Course Outline	:	UNIT I. INTRODUCTION A. Sign Convention B. Nomenclature C. Notation UNIT II. OPHTHALMIC LENS MATERIAL A. Glass 1. History Of The Glass Making 2. The Development of Optical Glass 3. The Manufacture of Optical Glass 4. Varieties of Optical Glass 5. Desirable Characteristics and Defects of Optical Glass B. Plastic Materials 1. Characteristics 2. Manufacturing Process 3. Development of Optical Glass 4. Manufacturer of Plastic Lenses 5. Optical and Physical Properties of Plastic Lenses C. The Strength of Lens Materials 1. The Strength of Glass 2. Methods of Tempering Glass Lenses 3. Impact Resistance of Plastic Lenses 4. Lenses for Occupational and Educational Use UNIT III. CHARACTERISTICS OF OPHTHALMIC LENSES A. Physical Characteristics 1. Curvature 2. Surface of Revolution 3. The Lens Measure 4. Lens Form 5. Prescription Writing and Transposition B. Optical Characteristics 1. Basic Terminology 2. Image Formation 3. Dimensional Aspect of Conoid of Sturm 4. Spherical Equivalent 5. Power in an Oblique Meridian 6. Obliquely Crossed Cylinders 7. Astigmatism due to Lens Tilt 8. The Maddox Rod UNIT IV. POWER SPECIFICATION AND MEASUREMENT A. Power Specification 1. Refractive Power 2. Approximate Power 3. Back Vertex Power

4. Front Vertex Power
5. Equivalent Power
6. Effective Power

UNIT V. OPHTHALMIC PRISMS AND DECENTRATION

A. Terminology
B. Refracting Power of a Prism
C. Effects of Prism on Eye Movements
D. Prentice Rule
E. Specification of Prismatic Effects; Their Prism Reference Point
F. Decentration

UNIT VI. ABERRATIONS AND OPHTHALMIC LENS DESIGN

A. Chromatic Aberration and Achromatic Lenses
B. Monochromatic Aberrations
   a. Spherical Aberration
   b. Coma
   c. Oblique Astigmatism
   d. Curvature of Image
   e. Distortion

UNIT VII. MULTIFOCAL LENSES

A. Physical Characteristics
   a. History and Development of Multifocal Lenses
   b. Fused Bifocal
   c. One Piece Bifocal
   d. Trifocals
   e. Plastic Multifocal
   f. Occupational Multifocal
B. Manufacturing Process
   a. Glass Multifocals
   b. Plastic Multifocals
C. Optical Principles of Multifocal Lens Design
D. Clinical Considerations
E. Invincible Bifocal and Progressive Addition Lenses

UNIT VIII. OPHTHALMIC MECHANICAL PROCEDURES

A. Lens Surfacing
   a. Marking
   b. Blocking
   c. Roughing
   d. Smoothing
   e. Fining
   f. Polishing
   g. Deblocking
   h. lens inspection
B. Benchwork
   a. benchwork layout

		b. cutting c. chipping / crumbing d. edging e. gazing f. final inspection and checking
Textbook and References	:	1. Clinical Optics by Theodore Grosvenor & Troy Fannin 2. Ophthalmic Mechanics by E.H. Waters 3. Optics by Fincham 4. Ophthalmic Mechanics & Dispensing by John Epting 5. The Optics of Ophthalmic Lenses by M. Morgan

Course Name	:	**GENERAL PATHOLOGY**
Course Description	:	This course deals study of the general concepts in pathology such as cell injury and adaptation, inflammation, infections, immunology and neoplasia. The disease process involving the different body systems will also be discussed as well as its clinical correlations.
Course Credit	:	3 units – 2 units lecture and 1 unit laboratory
Contact Hours	:	2 lecture hours and 3 units laboratory work per week
Pre-requisite	:	General Human Anatomy, General Physiology, Histology and Embryology
Placement	:	1st year / 2nd semester
Course Objectives	:	The Clinician should be able to differentiate normalcy from an abnormality in the body.
Course Outline	:	CONCEPTS IN PATHOLOGY Cell Injury, Adaptation, and Death Acute and Chronic Inflammation Tissue Repair: Cell Regeneration and Fibrosis Hemodynamic Disorders, Thrombosis and Shock Disease of Immunity Neoplasia Genetic and Pediatric Disease Environmental Diseases General Pathology of Infectious Diseases DISEASES OF THE ORGAN SYSTEMS The Blood Vessels The Heart The Hematopoietic and Lymphoid Systems The Lung and Upper Respiratory Tract The Kidney and its Collecting System The Oral Cavity and the Gastrointestinal Tract The Liver and Biliary Tract The Pancreas The Male Genital System The Female Genital System and Breast The Endocrine System

		The Musculoskeletal System The Skin The Nervous System
Textbook Reference	:	Basic Pathology 7th edition By; Stanley Robbins, Vinay Kumar and Ramzi Cotran 2003 Pathologic Basis Of Disease 5th edition By: Stanley Robbins, Vinay Kumar and Ramzi Cotran 1994 Pathology 2nd edition By: Alan Stevens and James Lowe 2000

Course Name	:	**OCULAR DISEASE 1**
Course Description	:	This course deals with the detailed discussion of the signs, symptoms, differential diagnosis and management of ocular diseases affecting the orbit, anterior segment of the eye and its ocular adnexa.
Course Credit	:	3 units- 2 units lecture and 1 unit laboratory
Contact Hours	:	2 lecture hours and 2 laboratory hours per week
Pre-requisite	:	General Pathology; Human Anatomy and Physiology with Neuro Anatomy; Ocular Anatomy and Physiology
Placement	:	2nd year / 1st semester
Course Objectives	:	1. At the end of the course the clinician should be able to recognize signs and symptoms of anterior segment disorders. These specifically include disorders involving the lids, lashes, conjunctiva, cornea, episclera, sclera, lens and vitreous. 2. The clinician should be able to diagnose the etiology of the anterior segment disorder. These specifically include, but are not limited to infection, inflammation, trauma, congenital, neoplastic, metabolic, vascular and environmental. 3. The clinician should be able to order, list and recognize the need for additional clinical and laboratory testing necessary to confirm their diagnosis of the anterior segment disease, disorder or condition. The accurate interpretation of these tests is also expected. 4. The clinician should be able to recall appropriate topical and oral medications necessary to treat the identified anterior segment disorders. 5. The clinician should be able to recall the proper referral and management strategies for the diagnosed anterior segment condition when appropriate.
Course Outline	:	DISORDERS OF THE EYELIDS i. Disorders of the lashes ii. Allergic disorders iii. Infections

		iv. Chronic Marginal Blepharitis v. Benign Eyelid Lesions vi. Malignant Eyelid Tumors vii. Entropion viii. Ectropion ix. Ptosis x. Miscellaneous Acquired Disorders xi. Miscellaneous Congenital Disorders DISORDERS OF THE ORBIT i. Thyroid Eye Diseases ii. Infections affection the orbit iii. Inflammatory Diseases iv. Vascular Malformations v. Cystic Lesions vi. Orbital Tumors vii. Fractures of the Orbit viii. Congenital orbital malformations DISORDERS OF THE LACRIMAL DRAINAGE SYSTEM i. Evaluation of watery eyes ii. Obstruction of the lacrimal drainage iii. Infections of the lacrimal passages iv. Surgical techniques and management DRY EYE DISORDERS OF THE CONJUNCTIVA i. Bacterial infections ii. Viral infections iii. Chlamydial infections iv. Allergic inflammations v. Neonatal conjunctival disorders vi. Chemical conjunctival disorders vii. Conjunctival degenerations viii. Miscellaneous inflammations ix. Squamous tumors x. Pigmented lesions xi. Miscellaneous tumors DISORDERS OF THE CORNEA i. Microbial keratitis ii. Viral keratitis iii. Peripheral corneal disorders iv. Corneal degenerations v. Corneal dystrophies vi. Corneal ectasias vii. Neurokeratopathies viii. Recurrent corneal erosions syndrome ix. Drug induced keratopathies x. Metabolic keratopathies xi. Congenital corneal abnormalities DISORDERS OF THE SCLERA

		i. Episcleritis ii. Scleritis iii. Scleral discoloration UVEITIS i. Uveitis associated with arthritis ii. Uveitis in non infectious systemic disease iii. Viral uveitis iv. Parasitic uveitis v. Fungal uveitis vi. Mycobacterial uveitis vii. Spirochaetal uveitis viii. Common idiopathic specific uvenitis syndromes ix. Rare idiopathic specific uveitis syndrome TRAUMA i. Eyelid trauma ii. Orbital Trauma iii. Trauma to the globe iv. Chemical injuries
Textbook and References	:	Clinical Ophthalmology: A Systemic Approach 5th edition By: Jack J. Klankis, M.D 2003 Cornea: Color Atlas and Synopsis of Clinical Ophthalmology By: C.J. Rapuano and W.J. Heng 2003 Systemic Diseases and the Eye 1st edition; By: Jack J. Klanski, MD 2001 Ocular Differential Diagnosis 7th edition; By: Frederick Hampton Roy 2002 Wills Eye Manual 3rd edition; By: Douglas Rhea, MD and Mark Pyfer, MD 1999 Primary Eye care in Systemic Diseases; By: Kelly Thompson, OD & Esther Marks, OD & Diane Adamczyk OD, 2001 Clinical Visual Optics. 2nd Ed 1991 Butterworths; By: Bennett A.G and Rabbetts R.B Clinical Management of Binocular Vision. Philadelphia Lippincott 1994. By: Scheiman M and Wick B,

Course Name	:	**GENERAL PHARMACOLOGY**
Course Description	:	This course deals with the general principles of drug action, autonomic drugs, antihistamines and mast cell stabilizers, antiseptics and disinfectants, anti ineffective agents, anti inflammatory agents, major drugs acting on the kidneys and other major common over the counter drugs
Course Credit	:	3 units (3 units lec)
Contact Hours	:	3 lecture hours per week
Pre-requisite	:	General Anatomy, General Pathology, Human Anatomy and Physiology with Neuro Anatomy, Ocular Anatomy and Physiology
Placement	:	2nd year / 1st semester

Course Objectives	:	The Clinician should be able to understand the action and uses of pharmacologic agents thus equipping him to become a primary eye health care provider
Course Outline	:	I. Introduction 1.1 Consumer Safety and Drug Regulations a. Drug Laws b. EDA and DEA 1.2 Drug Names and References a. Classifications b. Identifying Names c. Legal terms referring to drug d. Terms indicating Drug Actions 1.3 Sources and Bodily Effects of Drugs a. Sources of drugs b. Effects of drugs c. Pharmacokinetics d. Absorption e. Distribution f. Metabolism g. Excretion h. Other Variables i. Unexpected Response to Drugs 1.4 Medication Preparation and Supplies a. A space-Age Drug form b. Standard Drug Forms c. Supplies 1.5 Abbreviations and System Management a. Abbreviations b. Prescription writing c. System measurements 1.6 Safe Dosage Preparation a. Basic Calculation b. Ration and Proportion c. Pediatric Dosage d. Geriatric Dosage e. Prevention of Medication Errors II. Drug Classifications 2.1 Vitamins, Minerals and Herbs a. Fat-Soluble Vitamins b. Water Soluble Vitamins c. Minerals d. Antioxidants e. Alternative Medicine 2.2 Skin Medications a. Antipruritics b. Corticosteriods c. Keratolytics d. Scabicides and Pediculides

		e. Antifungal f. Antiviral g. Local Anti-infectives 2.3 Autonomic Nervous System Drugs a. Adrenergics b. Adrenergic Blockers c. Cholinergic d. Cholinergic Blockers 2.4 Antineoplastic Drugs a. Antimetabolites b. Alkylating Agents c. Plant Alkaloids d. Antitumor Antibiotics e. Hormone Therapy 2.5 Urinary System Drugs a. Diuretics b. Medications for Gout c. Astipasmodics d. Cholinergic e. Analgesics f. Prostatic Hypertrophy g. Alpha-blockers 2.6 Gastrointestinal Drugs a. Antacids b. Antipasmodics/Antichlolinergic c. Antidiarrhea Agents d. Antiiflatulents e. Laxatives and Cathartics f. Antiemetics 2.7 Anti-Infective Drugs a. Aminoglycosides b. Cephalosporins c. Macrolides d. Penicillins e. Quinolones f. Tetracyclines g. Antifungal h. Antituberculosis Agent i. Antiviral j. HIV/AIDS infections k. Sulfonamides l. Urinary Anti-infective 2.8 Eye Medications a. Anti-infectives b. Anti-inflammatory Agents c. Antiglaucoma Agents d. Mydriatics e. Local Anesthetics

		2.9 Analgesics, Sedative and Hypnotics 2.10 Psychotropic, Medications, alcohol, and Drug Abuse a. CNS Stimulants b. Antidepressants c. Antimanic Agents d. Anxiolytics e. Antipslychotic Medications/ Major tranquilizers f. Alcohol g. Drug Abuse 2.11 Musculoskeletal and Anti-Inflammatory Drugs a. Skeletal Muscle Relaxant b. Anti Inflammatory Drugs c. Osteoporosis Therapy 2.12 Anticonsultants, Antiparkinson an Drugs and Agent for Alzheimer's Disease 2.13 Endocrine System Drugs b. Pituitary Hormones c. Adrenal Corticosteroids d. Thyroid Agents e. Antidiabetic Agent 2.14 Reproductive Systems a. Androgens b. Impotence Agent c. Estrogens d. Progestins e. Contraceptives f. Labor and Delivery g. Gonadotrophic Drugs h. Infertility Drugs 2.15 Cardiovascular Drugs a. Cardiac Glycosides b. Antiarrhythmic agent c Antihypertensive d. Coronary Vasodilators f. Antilipemic Agents g. Vasoconstrictors h. Anticoagulants i. Thrombolytic Agents 2.16 Respiratory Systems and Anti histamines b. Oxygen c. Respiratory Stimulants d. Bronchodilators e. Corticosteroids f. Asthma Prophylaxis g. Mucolytics and Expectorants h. Antitussives i. Antihistamines j. Decongestants

		k. Smoking Cessation Aids 2.17 Preoperative Medications and Local Anesthetics a. Preoperative Medications b. Local Anesthetics
Textbook and References	:	Essentials of Pharmacology for Health Occupations 4th Edition by Ruth Woodrow; Publisher: Delmar. Thomason Learning, 2002 Core Concepts in Pharmacology by Manucher Ebadi; Lippincott-Raven Publisher, Philadelphia, New York, 1997 Pharmacy, by William N. Kelly; CRC Press, 2000
Course Name	:	**BINOCULAR VISION**
Course Description	:	This course deals with the basic concepts and theories of binocular vision and the study of the eye as a sensorimotor unit. The sensory aspect of binocular vision is discussed with emphasis on the various factors that provide obstacles to binocular vision. The motor aspect is studied with emphasis on the anatomy and physiology of EOM movements. This course will also study the different anomalies of binocular vision. The mechanisms, etiologies, signs and symptoms, differential diagnoses and modes of management are discussed for each anomaly.
Course Credit	:	5 units (3 lec 2 lab)
Contact Hours	:	9 hours per week
Pre-requisite	:	Ocular Anatomy and Physiology; Physiological Optics, Neuro Optometry
Placement	:	2nd year / 1st semester
Course Objectives	:	To instruct students in techniques for the examination and diagnosis of anomalies of binocular vision, sensory adaptation to strabismus, incomitance and methods for their management.
Course Outline	:	Unit I Introduction A. The eye as a sensory motor unit a. The sensory system b. The motor system B. Emprisim vs. Nativism UNIT II The Sensory System A. Fusion, Diplopia and the Law of Sensory Correspondence a. Visual Direction and retinomotor values b. Retinal Correspondence c. Sensory fusion d. Motor fusion B. Retinal rivalry C. Visual Space D. Retinal correspondence and the horopter E. Physiologic diplopia and suppression F. Panum's Area G. Criteria for Retinal Correspondence H. Fixation Disparity I. Grades of Binocular Vision a. Simultaneous Perception b. Fusion

		c. Stereopsis J. Theories of Binocular Vision a. Nativism b. Older theories UNIT III MOTOR SYSTEM A. Summary of the gross anatomy of the EOM a. Rectus muscles b. Oblique muscles c. Fascial muscles d. Developmental anomalies of the EOM and facial system e. Innervation of EOM f. Blood supply of the EOM B. Physiology of ocular movements a. Basic kinetics – transitory and rotary motions, centers of rotation , action of individual muscles b. Fundamental laws of ocular motility 1. Donders and listings law 2. Sherringtons law 3. Herings Law C. Survey of ocular movements , their control and characteristics a. Reflex of eye movements, their control and characteristics b. Small eye movements associated with steady fixation c. Versional movements (pursuits and saccades) d. Vergence eye movements (tonic, accommodative including models of accomodative/vergence interaction, fusional approximal) e. Nystagmus including optokinetri and vestibular III The Adnexal Musculature a. Purposes and role of vision b. Unique characteristics c. Reflex Action
Textbook and References	:	Burian and Von Noorden, Binocular Vision and Motility: Theory and Management of Strabismus. Mosby Pickwell, Binocular Vision and its Anomalies: Investigation and Treatment. Butterworth-Heinemann.

Course Name	:	**OPTOMETRY PRACTICE I**
Course Description	:	This course deals with theories, principles, procedures and techniques of the different monocular and binocular subjective examination from case history, preliminary tests, external examination, visual acuity tests, and other significance of the tests. In every procedure, students must be able to understand the significance of the test and interpret the findings. Through this course, practical training is enhanced and it prepares the clinicians for direct patient case services towards proper diagnosis, aids and preventions.
Course Credit	:	3 units lecture

Contact Hours	:	3 lecture hours per week
Pre-requisite	:	Physiological Optics, Theoretical Optometry, Neuro-Anatomy and Physiology,
Co-requisite		Refraction, Applied Optics
Placement	:	2nd year / 1st semester
Course Objectives	:	At the end of the course, the student should: a. be able to define key terms b. be able to take a complete case history of the patient c. be able to differentiate types of headache, conjunctivitis, blepharitis and other disturbances of vision d. be able to diagnose a patient well through the different abnormal signs and symptoms for the aid and prevention e. Be able to perform well visual assessment, visual acuity taking, PD taking, Ocular dominance, Ocular motility tests, binocular vision tests, color vision tests, visual field screening, and other significant ocular tests.
Course Outline	:	a. Case History Taking a.1 definition of terms and acronyms a.2 parts of case history a.3 clinical significance and interpretation a.4 return learning experience b. Patient Observation and external assessment b.1 patient observation and gross ocular inspection b.2 eyelids b.3 lacrimal system b.4 conjunctiva and sclera b.5 cornea, iris, pupil, lens b.6 anterior angle estimation b.7 intraocular pressure c. Visual Acuity Measurement c.1 definition of terms c.2 instrumentation c.3 clinical procedures - distance VA - near VA - pinhole visual acuity - pediatric visual acuity - geriatric/low vision visual acuity - contrast sensitivity test b. Pupillary Distance Measurement d.1 definition d.2 instrumentation d.3 clinical procedures anatomical/physiological method using PD meters d.4 clinical significance and interpretation c. Test for ocular dominance

		e.1 clinical procedures e.2 clinical significance and interpretation d. Tests of ocular motility and binocular vision f.1 definition f.2 instrumentation f.3 clinical procedures cover tests fixation/corneal reflex test Bruckner's test Near point of convergence Near point of accommodation Test of papillary function (reflex, size) Test for suppression (worth's 4-dot test, break string test) Test's for EOM (pursuit, saccadic, rotation) f.4 clinical significance and interpretation e. Color vision testing g.1 definition of terms g.2 instrumentation g.3 clinical procedures psuedoicoshromatic plate tests ishihara test color arrangement test other tests g.4 clinical significance and interpretation f. Visual Field Screening h.1 definition of terms h.2 instrumentation h.3 clinical procedures tangent screen amsler grid test confrontation technique finger counting visual field other tests g. Cranial Nerve Screening i.1 definition of terms i.2 clinical procedures muscle field with red lens, ductions and saccades test for a paretic horizontal muscle park's 3-step method dim-bright papillary test accommodative response of the pupil trigeminal nerve function test facial nerve function screening test for cranial nerves I, VIII, XI, and XII i.3 clinical significance and interpretation

Textbook and References	:	The Ocular Examination (measurement and findings) by: Karla Zadnik, OD, Ph.D. Clinical Procedures for Ocular Examination, 2nd edition by: Nancy Carlson, OD Clinical Refraction by Irvin Borish (1970, 1999)

Course Name	:	**REFRACTION**
Course Description	:	This course deals with the theories, principles and procedure of objective and subjective refractive techniques. Objective refractive techniques and dynamic retinoscopy and application for cycloplegic pediatric and low vision refraction. A short discussion on automated refraction must be included. Subjective procedures include the monocular, binocular and near subjective routines as well as determination of presbyopic addition.
Course Credit	:	4 units (2 lec 2 lab)
Contact Hours	:	8 hours per week
Pre-requisite	:	Theoretical Optometry 1 and 2, Theoretical Optics 1 and 2
Co-requisite		Optometric Practice 1
Placement	:	2nd year /1st semester
Course Objectives	:	The student should be able to refract the different refractive conditions. The student should be able to confidently perform subjective and objective refraction technique The student should be able to maximally utilize the different instruments in refraction. The student should be able to analyze the different test results and correlate them with the subjective symptoms presented by the patient.
Course Outline	:	1. Retinoscopy 1.1 Definition 1.2 Instrumentation 1.3 Clinical Procedures 1.3.1 Static Retinoscopy 1.3.1.1 Static Retinoscopy 1.3.1.2 Astigmatic eye 1.3.2 Dynamic Retinoscopy 1.3.2.1 OEP method 1.3.2.2 Book Retinoscopy 1.3.2.3 Bell Retinoscopy 1.3.2.4 Monocular Estimation Method (MEM) 1.3.2.5 Near Retinoscopy 1.3.2.6 Chromoretinoscopy 1.3.2.7 Radical retinoscopy 1.4 Cases

		1.5 Clinical Significance and Interpretation 1.6 Cycloplegic Refraction 1.6.1 Definition 1.6.2 Cycloplegic Agents 1.6.3 Retinoscopy in Cycloplegic Refraction 1.6.4 Clinical Significance and Interpretation 1.6.5 Cases 1.7 Pediatric Refraction 1.7.1 Definition 1.7.2 Clinical Procedure 1.7.3 Cases 1.7.4 Clinical Significance and Interpretation 1.8 Low Vision Refraction 1.8.1 Definition 1.8.2 Instrumentation 1.8.3 Subjective Refraction in Low Vision 1.8.4 Cases 1.8.5 Clinical Significance and Interpretation 2. Subjective Refraction 2.1 Definition 2.2 Instrumentation 2.3 Clinical Procedures 2.3.1 Monocular Subjective 2.3.2 Binocular Subjective 2.3.3 Near Subjective 2.3.4 Presbyopic Addition 2.4 Cases 2.5 Clinical Significance and Interpretation 3. Automated Refraction 3.1 Definition 3.2 Instrumentation 3.3 Clinical Procedure 3.4 Clinical application 3.5 Clinical Significance and Interpretation
Textbook and References		The Eye in General Practice by: CRS Jackson, RD Finlay 9th ed. Chruchill Wingstone Pub., 1991 Clinical Procedures in Optometry by: J. Boyd Eskridge, John F. Amos, Jimmy D. Bartlett J.B. Lipelmcott Company, 1991 Primary Care Optometry by: Theodore P. Grosvenor 2nd ed., Professional Press Books, Farichil Pub., 1998
Course Name	:	**APPLIED OPTICS**
Course Description	:	The clinical application of Optics in Refraction, Instrumentation, and Dispensing
Course Credit	:	2 units (lec)
Contact Hours	:	2 hours per week

Pre-requisite	:	Theoretical Optometry 1 and 2, Theoretical Optics 1 and 2, Practical and mechanical optics
Placement	:	2nd year / 1st semester
Course Objectives	:	The student should be able to apply his understanding of optics of ophthalmic instruments.
Course Outline	:	Optical Instruments A. Simpler Magnifier B. Telescope C. Biomicroscope D. Ophthalmometer E. Autorefractometer F. Lasers G. Gonioscope H. Slit Lamp with Camera and Video Attachment I. Beam Splitter J. Optics of Volk Lenses (70 D, 90D, 120D) K. Binocular Indirect Ophthalmoscope

Course Name	:	**OPTOMETRY ETHICS AND RELATED JURISPRUDENCE**
Course Description	:	This course deals with the study of the fundamental principles of law governing the Philippine optometry profession. The regulatory laws, the code of ethics based on RA 8050 and other laws affecting the practice of optometry in the country. It deals with the legal, ethical, and professional concerns of optometric practice, including legal decisions making, the regulatory role of government and administrative agencies, licensing procedures, professional liability and malpractice, ethical considerations and the legal rights of patients in optometric practice.
Course Credit	:	3 units lecture
Contact Hours	:	3 lecture hours per week
Pre-requisite	:	None
Placement	:	2nd year / 1st semester
Course Objectives	:	The student should be able to completely understand his legal responsibilities in the conduct of optometric practice, his rights and liabilities and the boundaries between ethical and unethical optometric practice. To discuss optometry in relation to the Department of Health, the College of Optometry and the general legal background to optometric practice.
Course Outline	:	I. The Law in General Classification of Laws 1. Divine Law 2. Human Law II. Ethical Theories and Philosophies III. Ethical Principles, Values and Professionalism i. Principles of Biomedical Ethics

		ii. Professional Ethics IV. Optometry Ethics and Jurisprudence i. Regulatory Laws and Regulations in Optometry ii. The Optometry Law iii. The Code of Professional Ethics iv. Government Regulatory Bodies in Optometry v. The Professional Regulations Commission vi. Board of Optometry vii. Commission on Higher Education V. The Practice of Optometry VI. The Optometrist-Patient Relationship VII. The Bill of Rights VIII. Rights of Patient IX. Rights of Optometrists X. The Law and Optometry Ethics i. The Judicial System ii. Procedural Law: The structure of a lawsuit iii. Liabilities of Optometrists iv. The Optometrists in Court v. Damages XI. Clinical Ethics i. Ethical Decision Making in Clinical Practice ii. Responsibilities in Patient Care iii. Clinical Ethics in Special Populations iv. Clinical Optometry in a Multicultural Society
Textbook and References	:	Optometry: Legal and Professional Aspects By: Claro M. Cinco, OD 2004 An Optometrists Guide to Clinical Ethics By: Norman Bailey, O.D. and Elizabeth Heitman, PhD 2002 Ethics of Health Care By: Raymond Edge and John Randall Groves 1987 Philippine Constitution

Course Name	:	**OCULAR PHARMACOLOGY**
Course Description	:	This course is designed to understand the mechanism and action of the various pharmacologic agents in the eye care with emphasis on diagnostic pharmaceutics and overview of the therapeutic agents and surgical-related eye drugs. It also aims to understand the medications used in the treatment of ocular disease and the ocular effects of systemic medications.
Course Credit	:	3 units (3 units lec)
Contact Hours	:	3 lecture hours per week

Pre-requisite	:	General Pharmacology, Ocular Anatomy and Physiology; Ocular Disease 1;
Placement	:	2nd year 2nd semester
Course Objectives	:	The clinician should be able to possess the ability to use Diagnostic Pharmaceutical Agent competently and to understand the use of therapeutic pharmaceutic agents. The teaching program will emphasize the importance of drug action in the eye and provide the optometry student with enough background to appreciate the special needs of optometry patients undergoing drug therapy for other conditions and be able to communicate confidently with patients and other health professionals about pharmacology and therapeutics. Topics that will be covered include: Principles of drug action; pharmacodynamics and pharmacokinetics. Administration of drugs to the eye; absorption and penetration through the cornea. Mechanisms of drug elimination and metabolism. Autonomic innervation of the eye; miotics, mydriatics and cycloplegics. Drugs used in systemic and central conditions and their consequence to ocular function. Drugs used in ocular conditions; local anaesthetics, anti-inflammatory drugs, antihistamines, anti-infective agents and drugs used in the treatment of glaucoma.
Course Outline	:	I. Fundamental Concept in Ocular Pharmacology a. Pharmacotheraphy of the ophthalmic patient b. Ophthalmic drugs c. Ophthalmic drug delivery d. Pharmaceutical and Regulatory Aspect of Ocular Administration e. Legal Aspect of Drug Utilization II. Pharmacology of Ocular Drugs a. Local Anesthetics b. Analgesic for Treatment of Acute Ocular Pain c. Cycloplegics d. Antiglaucoma Drugs e. Anti-Infective f. Anti-Inflammatory Agent g. Anti-allergy Drugs and Decongestants h. Lubricants and Other Preparation i. Anti Edema Drugs j. Irrigating Solutions k. Dyes l. Contact Lens Solutions and Care m. Adjunctive Agents III. Ocular Drugs in Clinical Practice a. Topical and Regional Anesthesia b. Dilation of the Pupil c. Cycloplegic Refraction d. Neuro-Ophthalmic Disorders e. Disease of the eyelids

		f. Disease of the conjunctiva g. Disease of the Cornea h. Allergic Eye Disease i. Diseases of the Solera j. Uveitis k. Post Operative Care of the Cataract Patient l. Disease of the Retina m. Thyroid-Related Eye Disease n. Pharmacologic Management of Strabismus o. Medical Management of the Glaucoma IV. Toxicology a. Drug Interactions b. Ocular effects of Systemic Drugs c. Life Threatening Systemic Emergencies
Textbook and References	:	Clinical Ocular Pharmacology. 3rd Edition, Bartlett, Jimmy; Jaanusm Siret: Havener's Ocular Pharmacology 6th Edition. Thomas F. Mauger, Mosby Drug-Induced Ocular Side Effects 4th Edition (International Edition), FT_Frauntelder, MD. Williams & Wilkins 1996

Course Name	:	**OPTOMETRIC PRACTICE II**
Course Description	:	This course is designed to provide the students with the necessary expertise in handling the different types of ophthalmic clinical instruments in order to facilitate examination procedures. The relevance of each test in coordination with the use and manipulation of the different ophthalmic instruments in the routinary clinical eye examination is given emphasis.
Course Credit	:	3 units (1 lec 2 lab)
Contact Hours	:	7 hours per week
Pre-requisite	:	Optometric Practice I
Placement	:	2nd semester, Opto 2 Proper
Course Objectives	:	The course aims to: 1. acquaint the students with the different types and brands of optical instruments 2. acquaint the students with the different parts of each instruments 3. provide the students the necessary skills, dexterity and expertise in handling the instrument 4. let the student utter the importance of the instrument as well as each of its part 5. build up self-confidence and dependence within the students with regards to clinical practice

Course Outline	:	I. Ophthalmoscopy a. Definition and Objectives b. Parts and Accessories c. Clinical Routine and Observation d. Types of Opthalmoscopy d.1 Direct Opthalmoscopy d.2 Indirect Ophthalmoscopy d.3 Comparison e. Identification of Normal and Abnormal Fundus II. Ophthalmometry a. Definition and its parts b. Measurement of Corneal Curvature c. Basis of Keratometry d. Types of Keratometry d.1 Bausch and Lomb d.2 CI or Micromatic d.3 Javal-Schiotz e. Clinical Procedure and its Importance f. Interpretation of Findings III. Retinoscopy a. Development and its Basic principles b. Illumination system and its parts c. The first, second,, and third movement d. Neutrality e. Appearance of the reflex and factors affecting the reflex f. Clinical technique in usual conditions g. Clinical technique in unusual conditions h. Refractometer and other objective devices i. Difference between objective and subjective results IV. Tonometry a. Definition and its development b. Brief Anatomy of the Anterior Chamber Angle c. Instrumentation, parts and accessories d. Kinds of tonometer d.1 Indentation d.2 Applanation d.3 Others Vibration, Air-type e. Provocative tests V. Biomicroscopy a. Definition and objectives b. Parts and its accessories c. Application of Illumination techniques b.1 diffuse illumination b.2 direct illumination b.3 indirect illumination b.4 retro-illumination b.5 specular illumination b.6 sclerotic scatter

		b.7 filtered illumination b.8 oscillation illumination b.9 tangential illumination LABORATORY Plate 1- Ophthalmoscope Plate 2- Keratometer-Bausch and Lomb Plate 3- The Normal Fundus of a fair complexion Plate 4- The Normal Fundus of a Negro Plate 5- Tessellated Fundus Plate 6- Medullated Fundus Plate 7- Albinotic Fundus Pate 8- Central Choroiditis Plate 9- Malignant Melanoma of the Choroid Plate 10- Disseminated Choroid Plate 11- Diffuse exudative Choroiditis Plate 12- Syphilic Choroiretinitis Plate 13- Coloboma of the Choroid Plate 14- Chorioretinal Degeneration of Myopia Plate 15- Retinal Detachment Plate 16- Retinal Detachment with large tear Plate 17- Hypertensive Retinopathy Plate 18- Hypertensive and Nephritic Retinopathy Plate 19- Diabetic Retinopathy Plate 20- Retinitis Proliferans Plate 21- Retinal Hemorrhage Plate 22- Colloid Bodies (Drusen) Plate 23- Retinitis Pigmentosa Plate 24- Thrombosis of the Superior Temporal Branch of the CRV Plate 25- Thrombosis of the Trunk of the CRV Plate 26- Recent Obstruction of the CRV Plate 27- Myopic Crescent Plate 28- Retinoblastoma Plate 29- Retinal Arteriosclerosis Plate 30- Papilledema Plate 31- Papillitis Plate 32- Senile Atrophy of the Optic Nerve Plate 33- Glaucomatous Cupping Plate 34- Amaurotic Family Idiocy Plate 35- Senile Degeneration of the Macula Plate 36- Hole in the Macula Plate 37- Macula Pucker ACTIVITIES AND EVALUATION: a. long written exams b. return learning experience c. practical examination of each instrument d. illustration and identification of different fundus

		e. illustration and labeling of the parts of each instrument f. semestral requirement of one (1) retinoscopy, one (1) tonometry, three (3) abnormal slit lamp evaluations g. semestral requirement of one (1) scrapbook of complete fundus plates
Textbook and References	:	a. Clinical Refraction I by Irvin Borish b. Clinical Ophthalmology, 3rd Edition by Butterworth-Heinemann c. May's Manual of the Diseases of the Eye by Allen d. Introduction to Ophthalmology by John Parr e. Primary Care Optometry 4th Ed, Grosvenor c2002 f. Basic Procedures by Lindy Dubois c1998 g. Instrumentation for Eye care Paraprofessionals by Michelle Pett Herrin c 1999

Course Name	:	**LOW VISION and GERIATRIC OPTOMETRY**
Course Description	:	An introduction to the epidemiology of aging and the clinical effects of aging on the visual system. The optometric assessment and management of the aging patient. An introduction to low vision care with emphasis on assessment and management of visual impairment and disability, including optical and non-optical therapies. The epidemiology of vision impairment, multidisciplinary management, and associated rehabilitative services will be discussed.
Course Credit	:	3 units (lec)
Contact Hours	:	3 hours per week
Pre-requisite	:	Theoretical Optics 1 and 2, Refraction, Ocular Disease 1 and 2; Optometric Practice 1
Co-requisite		Optometric Practice 2
Placement	:	2nd year / 2nd semester
Course Objectives	:	To give students a good working knowledge of the needs, methods of examination and assistance available to low vision patients.
Course Outline	:	1. Problem-based learning exercise: The scope of low vision practice, introduction to disability 2. Legal and functional definitions, registration; history and symptoms 3. Routine examination; testing acuity, magnification methods 4. Real image magnification - CCTV, Viewscan; telescopic magnification; methods for prescribing distance and near magnification; optics of plus-lens magnifiers 5. Binocular correction; control of aberrations in plus lens magnifiers, availability in the Philippines; hand-held and

		stand magnifiers 6. Telescopes; focal telescopes, contact lens telescopes 7. Aids to improve peripheral awareness; eccentric viewing, prism relocation; non-optical aids, environmental design, lighting, glare, tints 8. Success rates with low vision aids and the role of training; incidence and prevalence of visual impairment; sensory substitution 9. Measurement of visual performance in low vision
Textbook and References	:	R. Nowakowski, Primary Low Vision Care C. Dickinson, Low Vision: Principles and Practice

Course Name	:	**OCULAR DISEASE 2**
Course Description	:	This course deals with the detailed discussion of the signs, symptoms, differential diagnosis and management of ocular disease of the posterior segment, including the ocular manifestations of systemic diseases.
Course Credit	:	3 units (2 lec/ 1 lab)
Contact Hours	:	2 lecture hours and 3 laboratory hours per week
Pre-requisite	:	Ocular Disease 1 and General Pathology
Placement	:	2^{nd} year / 2^{nd} semester
Course Objectives	:	1. The clinician should be able to recognize signs and symptoms of ocular and systemically induced ocular diseases, disorders and conditions. These include all tissues of the eye. 2. The clinician should be able to diagnose the ocular or systemic etiology of the ophthalmic disorders. These specifically include but are not limited to infection, inflammation, and trauma, congenital, neoplastic, coma, metabolic, vascular, and environmental. 3. The clinician should be able to order, list and recognize the need for additional clinical and laboratory testing necessary to confirm their diagnosis of the ocular and systemic etiology responsible for the ophthalmic disease, disorder or condition. The accurate interpretation of these tests is also expected. 4. The clinician should be able to recall appropriate topical and oral medications necessary to treat the identified ocular and systemic disorder. 5. The clinician should be able to recall the proper referral and management strategies for the diagnosed ocular and systemic condition when appropriate. 6. The clinician should be able to write an assessment for the patient PRIOR to being staffed in order to fully demonstrate their capability of merging the didactic and clinical education received from the curriculum at the college.
Course Outline	:	GLAUCOMA i. Methods of examinations

		Tonometry Gonioscopy Perimetry ii. Ocular hypertension iii. Primary open angle glaucoma iv. Normal tension glaucoma v. Primary angle closure glaucoma vi. Pseudoexfoliative glaucoma vii. Pigmentary glaucoma viii. Neovascular glaucoma ix. Inflammatory glaucoma x. Lens related glaucoma xi. Iridocorneal endothelial syndrome xii. Miscellaneous secondary glaucoma xiii. Primary congenital glaucoma xiv. Glaucoma in phacomatoses xv. Anti-glaucoma drugs xvi. Lasers in glaucoma therapy xvii. Glaucoma surgery DISORDERS OF THE LENS i. Acquired cataract ii. Management of age related cataract iii. Congenital cataract iv. Cataract surgery v. Abnormalities in lens shape and position RETINAL DETACHMENT i. Pathogenesis of retinal detachment ii. Clinical features of retinal detachment iii. Differential diagnosis of retinal detachment iv. Retinal detachment surgery ACQUIRED MACULAR DISORDERS i. Age related macular degeneration ii. Age related macular hole iii. Central serous retinopathy iv. Cystoid macular edema v. Myopic maculopathy vi. Macular epiretinal membrane vii. Angoid streaks viii. Choroidal folds ix. Drug induced maculopathies x. Miscellaneous maculopathies HEREDITARY FUNDUS DYSTROPHIES i. Retinal dystrophies ii. Choroidal dystrophies iii. Vitreoretinopathies iv. Albinism v. “Cherry red spot” at macula syndromes RETINAL VASCULAR DISORDERS

		i. Diabetic retinopathy ii. Retinal vein occlusion iii. Retinal artery occlusion iv. Ocular ishemic syndrome v. Hypertensive retinopathy vi. Sickle cell retinopathy vii. Retinopathy of prematurity viii. Retinal artery macroaneurysms ix. Primary retinal telangiectasia x. Radiation retinopathy xi. Retinopathy in blood dsycrasias OCULAR MANIFESTATIONS OF SYSTEMIC DISEASES
Textbook and References	:	Clinical Ophthalmology: A Systemic Approach 4th edition; By:Jack J. Kanski, MD 2003 Primary Eyecare of the Glaucoma 2nd edition; By: M. Fingeret and T.L. Lewis 2001 Glaucoma Handbook; By: Anthony Litwak, OD.,FAAO Disease of the Retina and the Vitreous; By: R.F. Sparde 1999 Disease of the Macula: A Practical Approach; By: Jack. Kanski and Stanslaw Milewski 2003 Retinal Detachment: A Manual of Diagnosis and Treatment 2nd edition; By: Jack J. Kanski and Zdenek J. Gregor 1994 Ocular Manifestations of Systemic Diseases; By; Bernard H. Blaustein, OD 1994 Primary Eyecare in Systemic Diseases; By: Kelly Thompson, OD & Esther Marks, OD & Diane Adamezy; By: Jack J. Kanski, MD 2001 Ocular Differential Diagnosis 7th edition; By: Frederick Hampton Roy 2002 Ocular Syndromes and Systemic Diseases 3rd edition; By: Frederick Hampton Roy 2002 Wills Eye Manual 3rd edition; By:Douglas Rhea, MD and Mark Pyfer, MD 1999 Clinical Visual Optics. 2nd Ed 1991 Butterworths.By: Bennett A.G and Rabbetts R.B Clinical Management of Binocular Vision. Philadelphia Lippincott 1994. By: Scheiman M and Wick B

Course Name	:	**CONTACT LENS**
Course Description	:	This course deals with the theoretical background of fitting contact lenses, history of contact lenses, types of contact lenses, wearing mode of contact lenses , materials and manufacturing methods of contact lenses.
Course Credit	:	4 units (3 lec/ 1 lab)
Contact Hours	:	3 lecture hours and 3 lab hours per week
Pre-requisite	:	Optometry Practice 1 and 2

Placement	:	2nd year / 2nd semester
Course Objectives	:	The student should be able to know the history of contact lenses and the evolution of contact lens materials and design. The student at the end of the course should be able to understand the principles in fitting contact lenses. The student should be able to appreciate the advantages of contact lenses over spectacles. The student should be able to decide which contact lens material, design and wearing mode, is best fitted for a particular patient according to the refractive condition, lifestyle, ocular dimension, tear film characteristic and other factors related . The student should be able to understand fully the optics of contact lenses. The student should be able to fit spherical soft contact lenses and spherical rigid contact lenses to patients. The student should be able to perform slit lamp biomicroscopy and assess patients cornea, tear film, lids, conjunctiva, iris, sclera, aqueous humor and retina.
Course Outline	:	History of contact lenses Evolution of contact lens material. Advantages of contact lens over spectacles. The ideal contact lens material. Factors to consider if a patient is a good candidate for contact lens fitting. Optics of contact lenses Parameters of contact lenses: Back Optic Zone Radius Power Diameter Optic Zone Peripheral Curves Water Content Material Effect of changing the parameters of contact lens (decreasing the diameter, changing the base curve) The ocular parameters to be measured prior to contact lens fitting: Reason for contact lens fitting History of contact lens wear (if any) Tear Film assessment The lid characteristic Medications taken (if any)

		Refractive error (sphere vs cylinder component)
Textbook and References	:	Contact Lens Practice by Ruben and Guillon Contact Lens Practice by Robert Mandell Fitting Guide for Hard and Soft Contact Lenses by Stein&Slatt Clinical Refraction by Irvin Borish IACLE Contact Lens Module 1-10

Course Name	:	**PEDIATRIC OPTOMETRY**
Course Description	:	This course deals with the characteristics of the pediatric eye population, the growth and development of pediatric eye disorders, and special concerns like vision screening, pediatric low vision and visual dyslexia. It deals with specialized diagnosis and management strategies for the infant and child. Topics will include refractive and binocular vision anomalies, disease and pharmacology.
Course Credit	:	3 Units lecture
Contact Hours	:	3 lecture hours per week
Pre-requisite	:	General and Ocular Anatomy, General and Ocular Pathology, Histology and Embryology, Human Anatomy and Physiology with Neuro-anatomy and Neuro-optometry
Placement	:	2nd year/semester
Course Objectives	:	1. The clinician should be able to choose the most appropriate visual acuity test based on the developmental level of the patient. The clinician should be able to evaluate visual acuity (distance and near) by performing one or more of the following test and correctly record the result. a. Preferential looking b. Dot box c. Lighthouse chart or cards d. Broken wheel cards e. Fixation preference f. Hotv 2. The clinician should be able to evaluate the sensory status of the patient performing the ff. tests and correctly record the result. a. Pediatric flashlight b. Lang stereo test c. Random dot e stereo test 3. The clinician should be able to evaluate the refractive status of the patient by performing one or more of the ff. procedures and correctly record the results. a. Near retinoscopy (mohindra) b. Cycloplegic refraction c. Subjective refraction 4. The clinician should be able to evaluate the ocular deviation of the patient by performing the ff. tests and correctly record

		the results. a. Hirschberg / kappa b. Krimsky c. Bruckner d. Cover test with prism neutralization at far and near 5. The clinician should be able to evaluate the motor fusion and accommodative status of the patient by performing one or more of the ff. procedures and correctly record the results. a. Near point of convergence b. Out of instrument motor fusion (prism bar) c. Out of instrument step vergence d. Amplitude of accommodation e. Mem retinoscopy 6. The clinician should be able to evaluate the ocular health of the patient by performing the ff procedures and correctly record the results. a. Non contact tonometry b. Hand held slit lamp c. Ophthalmoscopy d. Versions e. Pupil evaluation f. Confrontation visual field 7. The clinician should be able to identify any abnormal findings, recognize any associated abnormal findings, correlate results of history with the examination results, and formulate a final diagnosis if possible. 8. The clinician should be able to manage common refractive anomalies based on the age of the patient. The clinician should be able to identify whether the refractive status is normal or abnormal based on the chronological age of the patient. 9. The clinician should be able to prescribe a lens prescription based on the refractive, binocular, accommodative, and special visual needs of the patient. 10. The clinician should be able to recognize and appropriately refer conditions requiring diagnostic or management services beyond that normally provided in a family practice examination.
Course Outline	:	PART I. GROWTH AND DEVELOPMENT A) General Growth And Development B) Anomalies of Child Development 1. Clinical techniques and tests to assess the development of an infant (birth to 18 mos.) 2. Physical status 3. Fine and gross motor development 4. Personal-social development

5. Speech-language development

C) Optical Components of the Eye: Embryology and Post-Natal Dev't.
   1. Clinical characteristics of children who deviate from normal patterns of development, and epidemiology of developmental disorders
   2. Mental abilities
   3. Sensory abilities (vision and Daring handicaps)
   4. Neuromuscular and physical
   5. Personal-social behavior
   6. Speech and language abilities
   7. Multiple handicaps
   8. Specific learning disabilities

D) Normal Development Of Visual Disorders

E) Visuomotor Development

F) Genetics and Congenital Ocular Visual Disorders

G) Refractive Status of Infants and Children

PART II. GENERAL DIAGNOSIS AND MANAGEMENT

A) Assessment
   1. Taking the case history of pediatric patients
   2. Optometric examination
      a. External examination
      b. Ophthalmoscopy
      c. Refraction
      d. Binocular Vision Assessment
      e. Other exams
         i. visual attention and discrimination
         ii. visual motor integration
         iii. intersensory integration
         iv. bilateral integration and laterality

B) Diagnosis

C) Management of Pediatric Eye Problem
   1. Refractive
   2. Binocular Vision
   3. Pathologies

PART III. SPECIAL PEDIATRIC CONCERNS

A) Visual Screening (IOA)

B) Vision Dyslexia

C) Visually Impaired Child

PART IV. ANOMALIES OF CHILD DEVELOPMENT

		A) Clinical techniques and test to assess the development of an infant (birth to 18 months) toddler (18 mos. To 3 years), pre-schooler (3 to 5 yrs) and school age child B) Physical status C) Fine and gross motor development D) Personal-social development E) Special language development F) Clinical characteristics of children who deviate from normal patterns of development, and epidemiology of developmental disorders G) Mental abilities H) Sensory abilities (vision and hearing handicaps) I) Neuromuscular and physical J) Personal-social behaviors K) Speech and language abilities L) Multiple handicaps M) Specific learning abilities PART V. TESTS THAT DIAGNOSIS VISION PROBLEMS WHICH MAY BE ASSOCIATED WITH DEVIATION FROM NORMAL PATTERNS OF DEVELOPMENT A) Mental abilities B) Sensory abilities (vision and hearing handicaps) C) Neuro-muscular and physical abilities D) Personal-Social behaviors E) Speech and language abilities F) Multiple handicaps G) Specific learning abilities PART VI. TEST USED BY OPTOMETRIST AND OTHER DISCIPLINES IN SCREENING, EVALUATIONG, MANGING AND REFERRING CHILDREN WHO DEVIATE FROM NORMAL PATTERNS OF DEVELOPMENT. A) Mental abilities B) Sensory abilities (vision and hearing handicaps) C) Neuro-muscular and physical abilities D) Personal-Social behaviors E) Speech and language abilities F) Multiple handicaps G) Specific learning abilities
Textbook and References	:	1. Pediatric Optometry by Rosenbloom and Morgan 2. Pediatric Optometry 2nd ed. By Jerome Rosner and Joy Rosneer 3. Principles and Practice of Pediatric Optometry by: Rosenbloom, 1990 4. Pediatric Eye Care by Simon Barnard, 1998

		5. Pediatric Ophthalmology by: Taylor, 1990

Course Name	:	**OPTOMETRY ECONOMICS AND PRACTICE MANAGEMENT**
Course Description	:	The subject "Optometry Economics and Practice Management" is geared toward equipping Optometry students with the knowledge and skills in matters of business, economics and management; and all their aspects that are related in the establishment, operation, maintenance, and development of an Optometric practice. Discuss the labor code of the Philippines, rights and privileges of employed optometrists.
Course Credit	:	2 units (lec)
Contact Hours	:	2 hours per week
Pre-requisite	:	None
Placement	:	2nd year / 2nd semester
Course Objectives	:	In this course, the student must be able to correlate knowledge and skills in business, all aspects related to establishment, operation, maintenance of an optometric clinic, also to prepare for future management and optometric practice.
Course Outline	:	I. Introduction a. History of Business in Optometry i. Trade ii. Craft iii. Profession b. The Relationship between Ethics and Practice Management i. Aspects 1. operations 2. finance 3. profession 4. marketing II. Aspects of Business in Optometry a. Internal Aspects i. Basic procedures in Management 1. Conceptualizing 2. Planning ii. Markets and Marketing 1. Definitions 2. Basic Psychological Aspects 3. Identifying your market 4. Patient-Practitioner Relationship 5. Analysis and application iii. Finance 1. Definitions 2. Basic Economics review 3. Basic Cash Flow

		4. Basic Accounting 5. Analysis and Application iv. Human Resources 1. Definitions 2. Usage 3. Analysis and Application v. Organizational Formation 1. Defining your practice a. character b. specialization c. clinic set-up 2. Choosing a location for your clinic 3. Setting-up a. Making purchases b. Legal requirements b. External Aspects i. How to project to the patient who you are ii. How to align with the patient's perception of you iii. Keeping a professional and ethical image in the midst of doing business c. Comprehensive Situational Mastery i. General Operations 1. professional 2. legal 3. ethical 4. financial 5. perceptional ii. Basic Procedures in Management 1. implementing 2. evaluating iii. Analysis and Application
Textbook and References	:	Business Aspects of Optometry by Classe,Hisaka,Lakin,Rounds &Thal Optometry, Legal and Professional Aspects, Cinco Enterprise Creation and Procreation, Morato

Course Name	:	**CLINICAL CONFERENCE 1 and 2**
Course Description	:	This course aims to actuate the clinical skills of the student-clinicians in the clinical practice of visual analysis, patient care and optometric procedure. Case discussion and student evaluation is done on a daily basis. It includes ocular and visual examinations, recording of clinical data, interpretation of findings; diagnosis and management of primary eye care patients. Students are expected to accomplish common cases of ametropias and other binocular anomalies.
Course Credit	:	5 units (3 lec 2 lab)

Contact Hours	:	9 hours per week
Pre-requisite	:	Optometric Practice 2, Ocular Disease 2, Binocular Vision 2, Pediatric Optometry, Geriatric Optometry and Low Vision , Visual Analysis 2, Contact Lenses (ALL PROFESSIONAL OPTOMETRY SUBJECTS PRIOR TO THIS)
Placement	:	3rd year/ 1st semester
Course Objectives	:	This course aims to actuate the clinical skills of the student-clinicians in the clinical practice of visual analysis, patient care and optometric procedure.
Course Outline	:	I. Review of the Preliminary and Optometric Examination Tests II. Schematic Diagram of Chief Complaint a. headache b. blurring of vision c. eyestrain d. diplopia e. photophobia f. floaters g. pain h. metamorphopsia III. Pupillary Reflexes and its abnormalities IV. Amsler Grid & Contrast Sensitivity Tests with Interpretation V. Progressive Additional Lenses Fitting VI. Verification and Dispensing VII. Optometric Continuing Education Program VIII. Presentation of Case Studies IX. Systematic Diseases with Ocular Manifestations a. Diabetic Retinopathy b. Hypertensive Retinopathy c. Tuberculosis d. AIDS e. Syphilis f. Arthritis g. Intracranial Tumors
Textbook and References	:	Primary Care Optometry 4th Edition, Grosvenor Clinical Procedure for Ocular Examination 2nd Edition, Borish Clinical Refraction

Course Name	:	**CLINICAL CONTACT LENS**
Course Description	:	Detection and management of chronic and acute complications induced by contact lenses. Contact lens management options for special conditions such as dry eye, aphakia and keratoconus (and other corneal irregularities). Disposable lenses and replacement regimens. Extended wear options. Alternative management of refractive errors such as orthokeratology and refractive surgery. Contact lenses and presbyopia.
Course Credit	:	4 units (2 lec 2 lab)
Contact Hours	:	8 hours per week

Pre-requisite	:	Contact Lens 1
Placement	:	3rd year/ 1st semester
Course Objectives	:	1. The clinician should be able to thoroughly evaluate/review all areas of the patients case history when comprehensive primary care examinations are performed. These areas include chief complaint, patients eye health,.patients medical health, family eye and medical health, medications, allergies, CL history, age, vocation and avocational visual demands. 2. The clinician should be able to thoroughly evaluate/ review all areas of the patients contact lens case history when contact lens follow up/ progress examination are peformed. These areas include but are not limited to : Contact lens related chief complaint, if the patient has previously worn contact lenses, reason for discontinuation of contact lenses if applicable, Vas (distance and near), comfort, handling, wearing time, care system and compliance with care system regimen. 3. The clinician should be able to address, attempt to resolve, and present findings to the patient concerning their chief complaint and any other relevant findings by the end of the examination. Technical skills: a. RGP Analysis b. SCL Analysis c. RGP application, removal and recentering d. SCL application and removal e. Keratometry f. Retinoscopy g. Subjective Refraction h. Biomicroscopy i. RGP Modification 4. The Clinician should be able to write a complete contact lens order (CL Rx) . From data collection furnished, the student will prescribe and provide care to patients requiring the following treatment options: a. Soft Sphere b. Soft Toric c. Extended Wear/ Flexiwear Lenses (RGP or SCL) d. Rigid Thin Flex e. Rigid Base Curve Toric f. Rigid Bitorics (SPE/CPE) g. Rigid front surface torics h. Monovision (Rigid or Soft) i. Bifocals (Rigid or Soft)
Course Outline	:	1. Contact lens complications 2. Grading scales for contact lens complications

		3. The tear film in contact lens practice 4. Disposable contact lens controversies 5. Understanding oxygen 6. Bifocal lenses 7. Compliance in contact lens practice 8. Contact lens wear by diabetic patients 9. Contact lenses for sport 10. Extended wear of contact lenses 11. The future of contact lenses
Textbook and References	:	Phillips AJ, Speedwell L. Contact Lenses. 4th ed. Butterworth-Heinemann, Oxford, 1997 IACLE MODULE 1-10 Ruben M, Guillon M. (Eds) Contact Lens Practice. Chapman & Hall Medical, London, 1994.

Course Name	:	**CLINICAL ORTHOPTICS AND PEDIATRIC OPTOMETRY**
Course Description	:	This course deals with the clinical assessment of pediatric and squint patients and the diagnosis and management of their ocular anomalies.
	:	4 units (3 lec 1 lab)
Contact Hours	:	6 hours per week
Pre-requisite	:	Pediatric Optometry, Binocular Vision, Neuro Optometry
Placement	:	3rd year/ 1st semester
Course Objectives	:	1. The clinician should be able to choose the most appropriate visual acuity test based on the developmental level of the patient. The clinician should be able to evaluate visual acuity (distance and near) by performing one or more of the following test and correctly record the result. • Preferential looking • Dot box • Lighthouse chart or cards • Broken wheel cards • Fixation preference • Hotv 2. The clinician should be able to evaluate the sensory status of the patient performing the ff. tests and correctly record the result. • Pediatric flashlight • Lang stereo test • Random dot e stereo test 3. The clinician should be able to evaluate the refractive status of the patient by performing one or more of the ff. procedures and correctly record the results. • Near retinoscopy (mohindra)

		• Cycloplegic refraction • Subjective refraction 4. The clinician should be able to evaluate the ocular deviation of the patient by performing the ff. tests and correctly record the results. • Hirschberg / kappa • Krimsky • Bruckner • Cover test with prism neutralization at far and near 5. The clinician should be able to evaluate the motor fusion and accommodative status of the patient by performing one or more of the ff. procedures and correctly record the results. • Near point of convergence • Out of instrument motor fusion (prism bar) • Out of instrument step vergence • Amplitude of accommodation • Mem retinoscopy 6. The clinician should be able to evaluate the ocular health of the patient by performing the ff procedures and correctly record the results. • Non contact tonometry • Hand held slit lamp • Ophthalmoscopy • Versions • Pupil evaluation • Confrontation visual field 7. The clinician should be able to identify any abnormal findings, recognize any associated abnormal findings, correlate results of history with the examination results, and formulate a final diagnosis if possible. 8. The clinician should be able to manage common refractive anomalies based on the age of the patient. The clinician should be able to identify whether the refractive status is normal or abnormal based on the chronological age of the patient. 9. The clinician should be able to prescribe a lens prescription based on the refractive, binocular, accommodative, and special visual needs of the patient. 10. The clinician should be able to recognize and appropriately refer conditions requiring diagnostic or management services beyond that normally provided in a family practice examination.
Course Outline	:	1. Refraction of infants 2. Special techniques for infant examination (OKN,Forced preferential looking,Hirshberg and Krimsky,cycloplegia)

		3. Prescribing for the infant, other recommendations 4. Amblyopia prevention 5. Strabismus surgery considerations 6. Contact lens fitting 7. Infant vision - development of VA etc, incidence and type of refractive error; tests VA, refractive error and stereopsis. Prescribing and dispensing for young children 8. Objective visual acuity - OKN, VEP, preferential looking; VEPs - flash, pattern and sweep stimuli, methods, interpretation of latency and amplitude in development and disease 9. Dyslexia: optometric considerations ORTHOPTICS: 1. Causes of squint 2. Suppression 3. Amblyopia - definitions, visual function; investigation, management; eccentric fixation; treatment of amblyopia and eccentric fixation 4. Anomalous retinal correspondence 5. Squint: 5.1 Classification of squint 5.2 Accommodative concomitant convergent squint 5.3 Non-accommodative concomitant convergent squint 5.4 Concomitant divergent squint 5.5 Vertical squint 5.6 small squints 5.7 Incomitant squint - investigation and management 6. Surgical treatment of squint 7. Review of orthoptic management of squint and sensory anomalies 8. Nystagmus and strabismus Review of prism adaptation in phoria and squint
Textbook and References	:	Press, Clinical Pediatric Optometry.Butterworth,1993 Edwards and Llewellyn. Optometry Faye. Clinical Low Vision, 2nd. Ed. Little and Brown,1984 Tasman-Duane`s Clinical Ophthalmology.Lippincott,1991

Course Name	:	**CLINICAL LOW VISION AND GERIATRIC OPTOMETRY**
Course Description	:	This course deals with the clinical application of diagnostic procedures in low vision and the assessment and management of low vision cases. The interdisciplinary approach to the rehabilitation of the partially sighted will be emphasized. Different refractive and physiological changes in the elderly and their management will also be discussed.
Course Credit	:	3 units (2 lec 1 lab)

Contact Hours	:	5 hours per week
Pre-requisite	:	Low Vision and Geriatric Optometry
Placement	:	3rd year/ 1st semester
Course Objectives	:	The student should be able to handle and manage the different visual problems of the geriatric population.
Course Outline	:	UNIT I: LOW VISION PRACTICE A. Clinical: Application of Diagnostic Procedures 1. Non-invasive tests in Low Vision Assessment 1.1 Visual-evoked potential 1.2 Electroretinography 1.3 Laser Interferometry 1.4 Ophthalmic Ultrasonography 1.5 Contrasensitivity tests 2. Imaging techniques 2.1 Floursecein Angiography 2.2 Magnetic Resonance Imaging (MRI) 2.3 Computer Axial Tornography 3. Functional tests 3.1 Amsler Grid Test 3.2 Perimetry 3.3 Color Vision 3.4 Potential Acuity Test 3.5 Brightness Acuity Test B. General Assessment and management 1. Minimum Assessment (by Optometrist) 1.1 Case History taking 1.2 Visual Acuity Testing 1.3 Confrontation Test 1.4 Amsler's Grid 1.5 Environmental Assessment 2. Comprehensive Assessment (by Low Vision specialist) 2.1 Case History taking 2.2 Eye examination 2.3 Visual Acuity Testing and Refraction 2.4 Amsler's Grid and Perimetry 2.5 Demonstrating Low Vision Aids and Preliminary Fittinf of Low Vision Aid 3. Prescribing and Fitting Low Vision Aids C. Clinical Assessment and Management of Selected Eye Conditions 1. Achromatopsia 2. Albinism 3. Amblyopia 4. Aniridia 5. Aphakia (Monocular) 6. Cataract 7. Coloboma of the Iris

		8. Corneal Opacity 9. Diabetic Retinopathy 10. Glaucoma 11. Hemianopsia 12. Keratoconus 13. Maculopathies 14. Myopia (Degenerative) 15. Nystagmus 16. Optic Neuropathies 17. Retinal Detachment 18. Retinitis Pigmentosa 19. Rod Monochromatism 20. Subluxation of the Lens (Marfan's Syndrome) 21. Vascular Retinopathies d. Team Approach in the Delivery of Low Vision Care e. Case Presentation F. Laboratory: Practical Experiences with Low vision Devices G. Geriatric Optometry 1. Refractive and physiological changes in the elderly 2. Cataract removal considerations 3. Post-operative management of the cataract patient 4. Contact lenses in the geriatric population 5. Overview of common pathological conditions in the elderly 6. Contrast sensitivity measurement - principles, test methods (Arden, Vistech, Pelli-Robson etc), normals, effects of disease and refractive blur 7. Accuracy of refractive techniques - reliability and validity, techniques for minimizing error; auto-refractors 8. Aniseikonia - definition, tilt, induced effects, symptoms; measurement, modifications to conventional prescription, size lenses, isogonal lenses 9. Imaging - photography VS digital imaging of various structures of the eye. i.e. cornea lens and retina. Application of enhancing techniques, analysis and quantification and expert/neural techniques 10. Visual fields - screening instruments; autoplotting instruments 11. Principles of screening for eye disease; role of optometrist in glaucoma detection and investigation 12. Ocular Disease: Cataract and IOL lenses; refractive surgery; macular disease; hypertension; glaucoma; diabetic retinopathy; an optometrist's view of ocular disease
Textbook and References	:	Press, Clinical Pediatric Optometry.Butterworth,1993 Edwards and Llewellyn. Optometry

		Faye. Clinical Low Vision, 2nd. Ed. Little and Brown,1984 Tasman-Duane`s Clinical Ophthalmology.Lippincott,1991

Course Name	:	**CLINICAL NEURO-OPTOMETRY**
Course Description	:	This course deals with the clinical assessment, diagnosis and management of the different neurological problems with emphasis on the visual sensory and motor-sensory disorder. It will also highlight the discussion on the clinical management of neurological headache.
Course Credit	:	3 units (2 lec 1 lab)
Contact Hours	:	5 hours per week
Pre-requisite	:	Neuro-optometry ; Ocular Anatomy and Physiology with Neuro-anatomy
Placement	:	3rd year/ 1st semester
Course Objectives	:	The student should be able to manage the different visual field defects, afferent and efferent papillary defect, defect of the lesion of the efferent visual system. The student should be able to manage headache, its differential diagnosis and refer them to the proper health care practitioner.
Course Outline	:	UNIT 1: Clinical Management of the Visual pathway defect a. Glaucoma b. Optic neuropathy c. Retrobulbar nueuritis d. Pituitary adenomas e. Retrochiasmal lesions f. Cardiovascular accident g. Compressive masses h. Trauma UNIT 2: Clinical Management of the afferent and efferent papillary defect a. Argyl Robertson pupil b. Marcus Gunn Pupil UNIT 3: Clinical Management of the Defect of the Lesion at the efferent visual system a. Motility a.1 gaze palsies - INO - SNO a.2 EOM palsies - nerve III palsy - nerve IV palsy - nerve VI palsy a.3 nystagmus a.4 Eyelid retraction a.5 others

		b. Ocular Manifestation of Cavernous sinus disorder c. Ocular manifestation of disorder at the carotid artery division d. Orbital masses UNIT 4: Clinical Management of Neurologic Headache a. Migraine b. Tension Headache c. Tumor or compressive masses d. Others UNIT 5: Case Presentation
Textbook and References	:	Decision Making in Neuro-Ophthalmology by: Trobe Visual Field: Clinical Case Presentation by: Townsend, Griffin, Sclevin and Comer Neuro-Ophthalmology by: Podos Yanoop Neuro-Ophthalmology by: Glaser Visual Field Manual by: Werner

Course Name	:	**OCCUPATIONAL AND ENVIRONMENTAL OPTOMETRY**
Course Description	:	Concepts of occupational and environmental vision, occupational vision examination, vision standards and safety aspects of the workplace. Visual demands of different occupations and work prescription.
Course Credit	:	2 units (1 lec 1 lab)
Contact Hours	:	3 hours per week
Pre-requisite	:	Optometric Practice 1 and 2
Placement	:	3rd year/ 2nd semester
Course Objectives	:	Students learn at the end of the course the concepts of occupational and environmental vision, occupational vision examination, vision standards and safety aspects of the workplace.
Course Outline	:	i. Environmental Vision a. General Concepts b. Occupational Safety and Health Act c. Task Analyses for Visual Requirements d. Principles of Occupational Health and Hygiene e. Visual Environmental Design ii. Occupational and Industrial Vision Problems a. Dangers to vision: mechanical, chemical and radiation hazards b. Design and specification of protective eyewear c. Use of vision standards for job classification and vision screening; purposes and types of

		screening programs d. School visual problems; vision screening for schools; purposes and procedures; efficiency of screening techniques e. Practical aspects of illumination iii. Working Prescription a. Measuring Visual Demand b. Prescribing Working RX iv. Safety – Ocular Hazards & Work environment a. Illumination b. Ergonomics c. Walkthrough Survey d. Types of Physical and Ocular Hazards v. Industrial Emergencies and First Aid vi. Industrial Protection a. General Safety b. Safety Eyewear – Material and Test Standards b.1. ANZI standard vii. Special Ophthalmic Lenses a. Tints and Coatings b. Polycarbonate lenses viii. Environment Vision a. General Concepts b. Occupational Safety and Health Act c. Task Analysis and Work Requirements d. Principles of Occupational Health Hygiene e. Visual Environmental Design
Textbook and References	:	a. Occupational Safety and Health Standards / Department of Labor and Employment b. Advanced Optometric Studies Manual on Occupational Optometry c. Titmus Occupational Vision Standard Manual

Course Name	:	**OCULAR PROSTHESIS**
Course Description	:	The course is designed to enable students to learn the fitting procedures and manufacturing of Ocular Prosthesis using different materials and techniques.
Course Credit	:	2 units- 1 lec/ 1 lab
Contact Hours	:	1 lecture hour and 3 laboratory hours per week
Pre-requisite	:	Ocular Disease 2, Clinical and Conference 1
Placement	:	3rd year/ 2ns semester
Course Objectives	:	The Clinician should be able to do actual prosthetic fitting on a patient.
Course Outline	:	I. HISTORY and INTRODUCTION TO OCULAR PROSTHESIS a. What is Ocular prosthesis

		b. Why wear Ocular prosthesis c. Brief History II. REVIEW OF OCULAR ANATOMY a. Orbit b. Eyelids c. Lacrimal System III. ANOPTHALMIC SOCKET, SURGERY, PROCEDURES and INDICATIONS a. Common Ocular Diseases b. Enucleation c. Evisceration d. Exenteration IV. OPHTHALMIC PLASTIC SURGERY a. Grafting b. Lid Surgery c. Lid Reconstruction d. Surgery at the Canthi e. Socket Reconstruction V. POST OPERATIVE SURGERY a. Changes after surgery VI. TYPES OF PROSTHESIS and DESIGN FOR SPECIAL CASES a. Shell type b. Prosthetic Contact lens c. Artificial Eye c.1 Shallow fornix c.2 Pediatric prosthesis c.3 Pegging d. Maxillo facial prosthesis VII. MATERIALS and EQUIPMENTS a. Manufacturing Materials a.1 Waxes a.2 Impression materials a.3 Gypsum products a.4 Plastic materials a.5 Abrasive and Polishing materials a.6 Liquid agent a.7 Coloring materials b. Manufacturing Tools and Dental Laboratory Equipments b.1 Hand held driller b.2 Dental Flask, Clamp and Press b.3 Custom made Puncher b.4 Grinder/ Edger b.5 Others c. Uses and functions of Solutions, Cleaner and Lubricants c.1 Contact lens lubricant

		c.2 Contact lens cleaner c.3 Saline Solution c.4 Hydrogen peroxide d. Protective devices and materials use for cleaning the eye d.1 Disposable gloves d.2 Mask d.3 Cottons d.4 Alcohol d.5 Others e. Local anesthetics VIII. PATIENTS EVALUATION a. Case History Taking b. Preliminary Examinations c. Fitting IX. MANUFACTURING EXERCISES a. Fitting Methods a.1 Wax molding method a.2 Injection method b. Impression making c. Blank prosthesis d. Methods of iris making d.1 Iris Button d.2 Button painting d.3 Paper painting e. Conjunctival markings e.1 Deep and Superficial Conjunctival Vessels e.2 Pigments and Stain e.3 Arcus Seniles e.4 Others f. Polishing f.1 Sanding f.2 Purnice f.3 Metal Polishing agent X. DISPENSING PROCEDURES a. Proper handling procedures b. Patients handling procedures XI. TROUBLE SHOOTING a. To loose b. To light c. Appearance c.1 Deviation c.2 Volume XII. FOLLOW UP a. Complications b. Management of Ocular Prosthetics c. Maintaining your prosthesis Requirements:

		1. 1 PATIENT 2. 1 FITTING a. Wax Molding Method b. Injection Method 3. LABORATORY EXERCISES 4. SHELL TYPE PROSTHESIS
Textbook and References	:	INTERNET: Jarlingocularprosthetics.com Artificialeyeclinic.com Eyecancer.com Ocular prosthetics lab.com Contact lens spectrum.com Ocularis association of California.com BOOKS: ELEMENTS OF DENTAL MATERIALS 5th EDITION BY: RALPH W. PHILLIPS & B. KEITH MOORE DENTAL MATERIALS 8th EDITION PROPERTIES & MANIPULATION BY: ROBERT G. CRAIG and ET. AL MOSBY 2004 BASIC CLINICAL SCIENCE COURSE 2001-2002 SECTION 7 ORBIT, EYELIDS & LACRIMAL SYSTEM BY: AOA OPHTHALMIC PLASTIC SURGERY, 3rd EDITION BY: SIDNEY FORX GRUNE & STRATTON OPHTHALMIC PLASTIC SURGERY BY: ROBERT C. DELLA ROCCA DECISION MAKING and TECHNIQUES MC DRAW-HILL, 2002 BASIC CLINICAL SCIENCE COURSE 2001-2002 SECTION 4 OPHTHALMIC PATHOLOGY BY: AOA THE IACLE CONTACT LENS COURSE MODULE 9 SPECIAL TOPICS PUBLISHED BY INTERNATIONAL ASSOCIATION OF CONTACT LENS EDUCATORS

Course Name	:	**VISION TRAINING AND SPORTS VISION**

Course Description	:	The course is designed to provide basic knowledge in diagnosis, prognosis, and Orthoptic treatment of anomalies of Binocular Vision including the optical, motor, sensory, integrative, and perceptual systems. It also aims to provide knowledge and skills needed to enhance the visual performance of athletes and to provide knowledge and skills needed to enhance the visual performance of athletes and to design customized sports vision training program.
Course Credit	:	3 units
Contact Hours	:	2 hours lecture and 3 laboratory hours per week
Pre-requisite	:	Optometric Practice 1 and 2
Placement	:	3rd year/ 2nd semester
Course Objectives	:	1. The clinician should be able to conduct a comprehensive patient case history specific for visual information, processing problems, to include: to include patient demographics, chief complaints and related symptoms, PH, PMH, FEH, FMH, parent history form and any supplemental evaluation that have been performed. 2. The clinician should be able to evaluate the following characteristics of the VISUAL SPATIAL SYSTEM, by performing the following tests, recording the results and identifying whether the results are normal or abnormal; a. Bilateral integration; angels in the snow b. Laterality; piaget right left awareness test c. Directionality; piaget right left awareness test d. Directionality of letters and numbers; reversal frequency tests 3. The clinician should be able to evaluate the following characteristics of the VISUAL ANALYSIS SYSTEM by performing the following tests recording the results and identifying whether the results are normal and abnormal; a. Visual discrimination, form constancy, visual spatial test or visual perceptual skills b. Visual processing speed- perceptual speed test; primary mental ability test c. Visualization- spatial relation test; primary mental abilities tests 4. The Clinician should be able to evaluate the following characteristics of the visual motor system by performing the following tests, recording the results and identifying whether the results are abnormal or normal; a. Visual motor integration; developmental test of visual motor integration b. Visually guided fine motor accuracy- eye –hand coordination subtest; developmental test of

		visual perception c. Visually guided fine-motor speed – visual motor speed subtest; developmental test of visual perception d. Visual motor integration with symbols; woled sentence copy test 5. The clinician should be able to verbally or in writing list the potential treatment options, to include no treatment, lens therapy, prism therapy, active vision therapy and potential referrals. 6. The clinician should be able to verbally or in writing outline the treatment strategy for the patients vision efficiency and visual information processing deficits. 7. The clinician should be able to present the case to the patient/or parents and describe the primary problems in appropriate layman's terms, outline the general treatment strategy, (OVT and HVT components) treatment options available to the patient and the estimated treatment time. The presentation should reflect the tone and knowledgeable clinician. SPORTS VISION a. Evaluate the performance of an athlete in sports. b. Manage visual problem related to sports. c. Enhance the performance of an athlete with vision related problems. d. Perform certain exercises to improve visual skills.
Course Outline	:	UNIT I. FOUNDATIONS OF VISION THERAPHY 1. The evolution of Vision Therapy 2. Principles of Vision Therapy a. What is Vision Therapy? b. What does Efficient Visual Function involve? c. Optometric Evaluation of Visual Abilities d. Understanding Skilled Performance e. Programming VT f. Principles guiding Successful VT Therapy UNIT II. AN OVERVIEW OF SPORTS VISION 1. Introduction 2. History 3. Visual Skills Requirements UNIT III. COMMON PROBLEMS AN ATHLETE 1. Signs and Symptoms 2. Vision Problems UNIT IV. VISUAL HEALTH 1. Eye Protection a. Frames b. Lenses

		c. Accessories 2. Tints a. Indoor sports b. Out Door Sports 3. Contact Lens and Sports a. Advantages and Disadvantages b. Lens Type c. Specific Applications UNIT V. TYPES OF SPORTS 1. Outdoors a. Track and Field b. Cycling c. Golf d. Soccer e. Baseball f. Soft Ball g. Tennis h. Football 2. Indoors a. Dart b. Basketball c. Volleyball d. Swimming e. Table Tennis f. Badminton UNIT VI. SPORTS VISION THERAPHY 1. Program Design 2. Vision Therapy Goals 3. Home Vision Therapy 4. Sports Vision Therapy and Activities 5. Sports Vision Enhancement Training UNIT VII. SPORTS RELATED INJURIES AND FIRST AID
Textbook and References	:	a. Internet: www.agape.com www.browser.com www.allaboutvision.com/sports www.eyesite.co.za/gensports/index.asp b. Books: Applied Concept in Vision Therapy, Loenard J. Press, OD,FCOUD,FAAO Mosby Inc. 1997 The Contact Lens Manual, A Practical Fitting Guide Andrew Gasson and Judith Morris Butter worth- Heinemann LTD, 1993 Practical Aspects of Ophthalmic Optics Margaret Dowaliby New York, 1988 Ophthalmic Dispensing The Present Day Realities Ralph Drew Butter Worth Publishers, 1990

Course Name	:	**OPTOMETRIC REHABILITATION**
Course Credit	:	3 Units lecture
Contact Hours	:	3 lecture hours per week
Course Description	:	The course deals with the historical background, principles, symptomatology and psychological bases of optometric rehabilitation, its assessment and therapeutic approach. With great emphasis on the clinical rehabilitative management of impaired visual function due to ocular or neurological disease and trauma and minimizing its effect on the over all function of the individual, thus lessening the patient's frustration,. Improving their quality of life and helping them regain a measure of independence through visual rehabilitation.
Pre-requisite	:	Optometric Practice 1 and 2
Placement	:	3rd year/ 2nd semester
Course Objectives	:	1. The clinician should be able to thoroughly evaluate and review all areas of the patient's history when comprehensive examinations are performed. These areas include: chief complaint, patient's ocular condition including diagnosis and prognosis, medical history complete with systems review, family and ocular and medical history, medications, allergies, age, vocation and avocation vision demands. 2. The clinicians should be able to thoroughly review the effect of the patient's condition under central and peripheral vision. The clinician should be able to evaluate and review the conditions effect on mobility, distance vision, near vision, activities of daily living and illumination needs of the examination.
Course Outline	:	UNIT I. OPTOMETRIC MODEL OF VISION DEVELOPMENT 1. Antigravity 2. Centering 3. Identification 4. Speech-auditory 5. Acuity, refractive and eye health UNIT II OPTOMETRY, PSYCHOLOGY and LEARNING PROBLEMS 1. Learning disabilities 2. Mental retardation 3. Ocular tasks responsible for the reception of the visual stimuli 4. Motor tasks responsible for the reception of the visual stimuli UNIT III. OPTOMETRIC REHABILITATIVE THERAPHY 1. Neuroplasticity and its relationship to the functional vision 2. Elements for neural reprogramming 3. Goals of optometric management 4. Optometric treatment modalities 5. Treatment strategies

UNIT IV. FUNCTIONAL THERAPHY IN THE REHABILITATION OF ELDERLY PATIENTS

1. Oculomotor Functions
2. Vergence Eye Movements
3. Diagnosis of oculomotor dysfunctions
4. Rehabilitation of oculomotor dysfunction
5. Sensory adaptation training
   a. Perceptual Rehabilitation
   b. Aphakic Rehabilitation

UNIT V. AN OVERVIEW OF ACQUIRED BRAIN INJURY and OPTOMETRIC IMPLICATION

1. Ocular and Visual Sequelae of ABI
2. Accommodations for Cognitive and Affective Deficits in Individual with Brain Injury
3. Optometric Implications

UNIT VI. ACCOMMODATION INACQUIRED BRAIN INJURY

1. Introduction
2. Prevalence
3. The Neurology of Accommodation
4. Symptoms of Accommodative Parameters
5. Clinical Assessment of Accommodative Parameters
   a. Accommodative accuracy
   b. Accommodative amplitude
   c. Accommodative stability
   d. Accommodative flexibility
6. Management of Accommodative Dysfunction
   a. Accommodative insufficiency
   b. Accommodative fatigue
   c. Accommodative inertia
   d. Accommodative infacility
   e. Paralysis of Accommodation
   f. Accommodative excess
7. Vision Therapy

UNIT VII. INTERDISCIPLINARY MANAGEMENT and REHABILITATION OF ACQUIRED BRAIN-INJURED PATIENTS

1. Selected Rehabilitation Problems
2. Clinical Consideration
3. Rehabilitation Teams

UNIT VIII. OPTOMETRIC VISION THERAPHY

1. Body
2. Visual
3. Space

		4. Auditory 5. Laterality 6. Visual-tactile 7. Kinesthetic 8. Speech-Auditory
Textbook and References	:	1. VISION AND AGING 2nd EDITION BY ALFRED A. ROSEN BLOOM, JR. and MEREDITH W. MORGAN, 1993 2. VISUAL and VESTIBULAR CONSEQUENCES OF ACQUIRED BRAIN INJURY BY IRVIN B. SUCHOFF ET. AL , 2001 3. OPTOMETRIC VISION THERAPHY: INTRODUCTION TO BEHAVIORAL OPTOMETRY BY J. BAXTER SWARTWOUT, 1999 4. OPTOMETRIC MANAGEMENT OF VISUAL HANDICAP BY HELEN FARRALL, 1991 5. APPLIED CONCEPTS IN VISION THERAPHY BY LEONARD J. PROSS, 1997 6. JOURNAL OF BEHAVIORAL OPTOMETRY

Course Name	:	**PUBLIC HEALTH**
Course Description	:	This course deals with the introduction to the fundamentals and principles of public health problems, planning and care, with special attention to optometric and other visual aspects of variously identified segment of the community. It also includes methods of epidemiologic investigation and study and health care delivery and utilization. It also deals with the promotion and preservation of ocular health and safety in the home, community and the work place.
Course Credit	:	Units: 3 units for lecture
Contact Hours	:	Hours/Week: 3 hours for lecture
Pre-requisite	:	None
Placement	:	Placement: 3rd years/2nd semester
Course Objectives	:	The clinician should be able to: 1. Describe the nature of the professions, professional behavior, and professionalism and to clearly distinguish between professionalism and commercialism. Discuss the history and philosophy of the profession of optometry. 3. Characterize the roles of the optometrist and the profession of optometry in Filipino health care. 4. Describe the organization and administration of Department of Health.

		5. Define terms related to the Philippine health care system. 6. Recognize and describe community health concepts. 7. Design health educational and self-care protocols and materials for optometric public health purposes, distinguishing between behavioral and educational objectives. 8. Define health care consumerism and pertinent issues thereof. 9. Define and describe the major terms and concepts of epidemiology. 10. Describe the major concepts of health screening in general and vision screening in particular. 11. Describe and exemplify principles of early intervention (preventive) ophthalmic public health practice. 12. Identify principles of ethics that apply to health care, describe the process of ethical decision-making, and recognize significant ethical issues in optometric and clinical care and public health practice. 13. Describe the various roles an optometrist can serve in public health.
Course Outline	:	I. INTRODUCTION TO PUBLIC HEALTH A) Philosophy and History of Public Health B) Health and Community Health i. Definition of Terms ii. What is Health? 1. What is health promotion 2. Who promotes health 3. Aims and Values C) Optometric milestone in Public Health Optometry D) Public Health and Practicing Optometrists II. SCIENCE RELATED TO COMMUNITY HEALTH A) Epidemiology i. Introduction ii. Concepts of Diseases iii. Measures of Frequencies and Association iv. Basic Epidemiology B) Biostatistics C) Research i. Introduction ii. Nutritional Basic 1. Basic Food Groups 2. Food Guide Pyramid iii. Carbohydrates, Proteins, Fats, Fluids, Vitamins and Minerals D) Screening Principles E) Population Trends III. COMMON INFECTIOUS DISEASES IN THE

		COMMUNITY A) Communicable Diseases i. TB ii. Rabies iii. Measles iv. Chicken Pox v. Mumps Etc. B) Sexually Transmitted Diseases i. AIDS ii. Hepatitis iii. Gonorrhea iv. Syphilis etc. C) Common Systemic Diseases i. Diabetes ii. Hypertension D) Ocular Manifestation IV. VISIONS DISORDERS IN PUBLIC HEALTH A) Refractive Errors B) Causes of Vision Disorders i. Ocular Disease ii. Ocular Emergencies V. DELIVERIES OF OPTOMETRIC SERVICES A) Primary Care B) Geriatric Optometry C) Pediatric Optometry D) Health Insurance VI. GOVERNMENT OF HEALTH CARE POLICIES A) Phil Health B) SSS VII. HOMEOPATHY AND ALTERNATIVE MEDICINE FOR THE EYES
Textbook and References	:	John Walley, et al Public Health: An Action Guide to Improving Health in Developing Countries, Oxford University, 2001 Linda Ewles, et al Promoting Health: A Practical Guide. Bailliere Tin lall, 2003 Edwin Marshall et. Al Public Health and Community Optometry, Butterworth, 1990 Pauline Pearson, et. Al promoting team work in Primary Care, Arnold, 1997 Nutrition Made Incredibly Easy, Lippinest Williams and Wilkins, 2002 Mary E. Torrence, Understanding Epidemiology, Mosby 1997 SMART Medicine for the Eyes.

Course Name	:	**OPTOMETRIC RESEARCH (RESEARCH PROPOSAL)**
Course	:	A study of basic principles of epidemiology with particular

Description		emphasis on the epidemiology of vision disorders. The student learns how to apply epidemiological principles in the clinical setting.
Course Credit	:	3 units (1 lec, 2 lab)
Contact Hours	:	5 hours per week
Pre-requisite	:	All Professional Subjects prior to this
Placement	:	3rd year 2nd semester
Course Objectives	:	1. To equip the students with knowledge and skills which shall enable them to prepare good research proposal in Optometry. 2. describe the use of epidemiological data in medical practice 3. understand concepts used in screening for disease 4. describe the findings of the major epidemiological eye studies 5. identify and describe the types of studies used in epidemiology 6. describe morbidity and mortality in the Philippines including the distribution of eye and vision disorders
Course Outline	:	I. Principles in strategies and designs of study II. Steps in planning a research and proposal preparation 1. disease models 2. incidence 3. prevalence 4. mortality rates 5. descriptive and analytic studies 6. screening concepts 7. investigation of an outbreak 8. major eye studies 9. control of infectious diseases 10. descriptive and inferential statistical methodologies as they apply to disease occurrence and reporting
Textbook and References	:	Introductory Statistics by: Cristobal M. Pagoso and Rizalina A. Montana – Rex Bookstore; Essentials of Biostatistics by Robert Elston and William D. Johnson- Latest Edition; National Objectives of Health- Department of Health Manila; Optometry Journals- Optometry and Vision Science; Contact Lens Spectrum, Optometric Management; Eyecare Business; Clinical and Experimental Optometry

Course Name	:	**COMMUNITY AND HOSPITAL OPTOMETRY I**
Course Description	:	Students are assigned to various areas within the clinic where, under direct clinical faculty supervision, they participate in the provision of optometric services to clinic patients. In addition to primary care, they are exposed to the provision of contact lens,

		ocular health and optical services.
Course Credit	:	6 units (1 lec 5 lab)
Contact Hours	:	16 hours/week
Pre-requisite	:	All Professional Subjects Prior to this
Placement	:	4th year 1st semester
Course Objectives	:	General Objectives: The intent of the Externship Program is to provide the optometry student with an opportunity to be trained by outstanding practitioners in the science of primary and/or secondary care optometry. The Externship Program is an integral part of the curriculum and is designed to transform the optometry student into a complete health care professional who can apply scientific knowledge tempered by clinical insight and overall concern for the patient. Educational Objectives: 1. To develop the student's ability to apply knowledge of vision and basic sciences to prevent and/or solve problems of the vision system. 2. To develop the student's ability to utilize knowledge in the behavioral, social and other health sciences to alleviate human problems. 3. To develop a high level of competence in the use of modern optometric techniques, instruments and problem solving roles. 4. To engender high standards of professional competence and responsibility. 5. To develop the students ability to work and communicate effectively with other health professionals and ancillary personnel in meeting patient needs. Learning Objectives: 6. To demonstrate to the student the art of the practice of optometry as evidenced by the attending doctor/practitioner. 7. To widen the student's understanding of the spectrum of optometry by showing the student the clinical conditions (mental, physical and social, both acute and chronic) and their interaction with each other that make up the wide variety of health conditions in the community. 8. To demonstrate where legal, the use of common diagnostic and therapeutic procedures involved in the problem solving stages of the delivery of eye care. 9. To demonstrate the conscious and purposeful use and development of the doctor-patient relationship. 10. To demonstrate the comprehensive care of the family from infancy to the aged, particularly in highly

		susceptible groups. 11. To demonstrate the effect of an individual vision problem on the entire family. 12. To demonstrate the role of the "health team" in patient management and continuity of care including relationships with other health professionals and agencies. 13. To demonstrate preventive optometry and the importance of early diagnosis of ocular and vision anomalies, including ocular-related disorders. 14. To demonstrate the practical approach of the primary care optometrist to health maintenance. 15. To demonstrate the role of the optometrist in patient education. 16. To demonstrate the changing patterns of optometric care and familiarize the student with emerging patterns of eye care delivery. 17. To provide practical experience in the office management and business aspects of optometric practice. 18. To demonstrate the civic involvement a professional owes to his community.
Course Outline		The Community and Hospital Optometry Program provides fourth year Optometry Proper Program externs with the opportunity to rotate through up to four different off-campus clinical sites. Each rotation lasts for at least 12 weeks. The externship program enhances the intern's clinical knowledge and skills through intensive clinical experience. The program provides quality exposure in diverse clinical settings including government and private hospitals with optometry or ophthalmology centers , referral centers, military bases, HMO's, urban family clinics, hospital clinics, and Health Center Service facilities. Externs have the opportunity to explore different areas of specialty within the practice of contemporary optometry: 1. Contact lens, 2. Vision training 3. Ocular disease, 4. Pediatrics 5. Low vision. 6. Optometry Management 7. Ocular Prosthesis The experience at externship sites promotes the extern's skills as a primary eye care provider and develops his or her ability to deliver quality care in accessible healthcare facilities. The externship faculty, composed of leading clinicians throughout the country, participates not only at their respective facilities, but

		also at the College of Optometry through lectures, presentations, and continuing education programs. As Optometry faculty members, they are responsible for the supervision, training, and evaluation of externs studying at off-campus sites.
Equipment and Materials		1. Direct Ophthalmoscope 2. Binoclar Indirect Ophthalmoscope 3. 20 D Condensing Lens 4. REtinoscope 5. Penlight / Transilluminator 6. Trial lens set 7. Trial frame 8. Near point test chart (S) 9. Occluder 10. Millimeter rule 11. Confrontation test object 12. 'Fixation test object 13. Metric/English tape measure 14. Fusion test 15. Stereo test 16. Stethoscope 17. Sphygmonometer 18. Optical screw driver 19. Lens clock 20. 7x Comparator 21. Suction cup (Greeny) 22. Projector slide 23. PMMA Contact Lens Fitting set 24. Goldman 3 mirror

Course Name	:	**SEMINAR 1 (CURRENT ISSUES AND TRENDS IN OPTOMETRY)**
Course Description	:	The Student would be assigned a topic to expound on based on the current issues published in optometric journals, seminars, conferences, grand rounds, symposia, and fora.
Course Credit	:	2 units (lec)
Contact Hours	:	2 hours per week
Pre-requisite	:	All Professional Subjects prior to this
Placement	:	4^{th} year 1^{st} semester
Course Objectives	:	1. To train the students to become effective educators by requiring them to report in formal or a stimulated formal venue using appropriate audio-visual equipment with the department heads and faculty in attendance. 2. To expose the students to various fields of interest in optometry and help them to align themselves to a specific field of specialization in the future.

		3. To stimulate and develop the habit of updating oneself through journal readings.
Course Outline		I Models of learning a. Cooperative b. Active c. Formal d. Informal e. Distance Learning f. Technology of Integration II Learning Styles a. Auditory b. Visual c. Tactile d. Kinesthetic III Strategies of Teaching a. Lecture b. Case Method c. Discussion IV Learning Environment a. Wet Laboratory b. Seminar Forma t c. Moderator/Panel V Module Presentation a. Orientation b. Guidance c. Reference d. Motivation
Equipment & Supplies		See Appendix B
Textbook & References		Optometry Journals- Optometry and Vision Science; Contact Lens Spectrum, Optometric Management; Eyecare Business; Clinical and Experimental Optometry; Optometric Education

Course Name	:	**OPTOMETRY RESEARCH 2 (DATA COLLECTION AND RESEARCH PRESENTATION)**
Course Description	:	To equip the students with knowledge and skills which shall enable them to write scientific documents effectively.
Course Credit	:	3 units (1 lec 2 lab)
Contact Hours	:	7 hours per week
Pre-requisite	:	Optometry Research 1
Placement	:	4^{th} year 1st semester
Course Objectives	:	To develop in the students competence in presenting scientific papers in public forum

Course Outline	:	I. Preparation for Data Collection - Planning of Data Collection - Development and Standardization of tools - Data Collection II. Types of Scientific Documents III. Exercising Data Analysis IV. Writing of the Report of the Research Project under the guidance of Faculty adviser V. Preparation for Scientific Paper Presentation VI. Public Speaking
Materials & Equipment	:	See Appendix B
Textbook and References	:	Optometry Journals- Optometry and Vision Science; Contact Lens Spectrum, Optometric Management; Eyecare Business; Clinical and Experimental Optometry; Optometric Education

Course Name	:	**OPTOMETRY MEDICINE**
Course Description	:	This course deals with comprehensive health history, physical examination with emphasis on Head, Eyes, Ears, Nose and Throat and neurological screening and their relationship to ocular health conditions and medical management. This provides the knowledge needed to guide the students as they observe in various medical departments in the hospital under community and Hospital 1.
Course Credit	:	5 units (5 lec)
Contact Hours	:	5 lecture hours per week
Pre-requisite	:	All Professional Subjects prior to this
Placement	:	4^{th} year 1^{st} semester
Course Objectives	:	1. Apply the principles of medicine in the optometric clinic. 2.Determine the proper identification, management and referrals of ocular diseases found in the eye. 3.Enhance skills in attaining proper hygiene before any hospital procedures.
Course Outline	:	I. Introduction: The Optometric Examination ii. Health History Background iii. Functions of the Clinical Case History iv. Types of Histories a. Problem Focused b. Expanded Problem Focused c. Trauma d. Detailed e. Comprehensive f. Comprehensive Health V. The Patient Oriented Interview

a. Introduction and first impression
b. Interview environment and logistics
c. Patterns of speech and question presentation
d. Duration and controlling information flow
e. Patient types and interview approaches
f. Difficult patients
f.1 children
f.2 handicapped
f.3 different ethnic backgrounds
f.4 non-English speaking

VI. Medical Technology and Charting
a. Record Keeping
a.1 recording in a medical chart
a.2 corrections in a medical chart
a.3 medical legal requirements of records
a.4 use of intake forms
b. Medical Terminology and Abbreviations
b.1 common abbreviations
b.2 problem abbreviations
b.3 optometric abbreviations

VII. The Routine Optometric Case History
a. Demographics
b. Chief Complaints
b.1 History of Present Illness (HPI)
1. Question List
2. Minimum Documentation
3. Differential Diagnosis
b.2 Refractive Complaint
"Signs and Symptoms"
1. hyperopia
2. myopia
3. astigmatic
4. presbyopia
5. accommodative dysfunctions
6. headaches

c. Visual and Ocular History
1. Glasses and Contact Lens History
2. Trauma and Infection
3. HA's, diplopia, halos, flashes of light
4. Differential Diagnosis of Symptoms
d. Patient's Medical History
1. General Health, Blood Pressure, Vital Signs and Cholesterol
2. Under Care/Observation
3. Medication and Allergies
e. Review of Systems (ROS)
1. General Health

		2. Eyes 3. Ears, Nose, throat 4. Cardiovascular 5. Respiratory 6. Gastrointestinal 7. Genito-urinary 8. Musculoskeletal 9. Integumentary 10. Neurological 11. Psychiatric 12. Endocrine 13. Hemotological/Lymphatic 14. Allergic/Immunologic f. Family Medical History g. Vocation and Social History 1. Requirements and Recreational needs 2. Occupational and Social history 3. Computer tasks 4. Tobacco, Drug use etc. h. Mental status 1. Affect and Mood 2. Orientation 3. Abnormal descriptors VIII. Headache Histories and Headache Types 1. Questioning the Headache a. types of questions b. description 2. Headache Type and Differential Diagnosis a. Tension-type b. Vascular-migraine ,cluster, others c. Inflammatory and traction d. HA due to other factors IX. The Working Distance and Differential Diagnose of Complaints 1. Refractive 2. Binocular 3. Health 4. Case Examples X. Trauma, History, Follow-up and Interim Histories 1. Trauma Questions 2. Follow-up and interim data review 3. Documentation XI. Special Populations 1. Children 2. Seniors 3. Documentation Disabled
Textbook and	:	

References		1. PROFESSIONAL COMMUNICATION INEYE CARE, ETTINGER, c 1994 2. DICTIONARY OF EYE TERMINOLOGY, 3rd EDITION, c 1997 3. BATE'S GUIDE TO PHYSICAL EXAMINATION and HISTORY TAKING, BICKLEY, c 1999 4. HOSPITAL DENTISTRY, ZAMBITO, c 1997 5. EMERGENCY CARE IN THE OPTOMETRIC SETTING, HEIBERGER ET AL., c 2004 6. CLINICAL MEDICINE IN OPTOMETRIC PRACTICE, MUHICK, c 1994 7. PRIMARY EYECARE IN SYSTEMIC DISEASE, THOMANN ET AL, c 2001

Course Name	:	**COMMUNITY AND HOSPITAL OPTOMETRY II**
Course Description	:	This course provides an opportunity to work with a variety of patients and doctors. Students will be able to formulate their own individual style of practicing optometry as a result of these experiences. This course will help students plan a fourth year program that exposes them to different modes of practice (e.g., Hospitals, Public Health Services, and Private Practices). This course would also provide familiarity with the various specialty areas (e.g., contact lenses, visual training, etc.).
Course Credit	:	14 units (lab)
Contact Hours	:	42 hours per week
Pre-requisite	:	Community and Hospital Optometry 1
Placement	:	4th year 2nd semester
Course Objectives	:	General Objectives: The intent of the Externship Program is to provide the optometry student with an opportunity to be trained by outstanding practitioners in the science of primary and/or secondary care optometry. The Externship Program is an integral part of the curriculum and is designed to transform the optometry student into a complete health care professional who can apply scientific knowledge tempered by clinical insight and overall concern for the patient. Educational Objectives: 8. To develop the student's ability to apply knowledge of vision and basic sciences to prevent and/or solve problems of the vision system. 9. To develop the student's ability to utilize knowledge in the behavioral, social and other health sciences to alleviate human problems. 10. To develop a high level of competence in the use of modern optometric techniques, instruments and problem solving roles.

		11. To engender high standards of professional competence and responsibility. 12. To develop the students ability to work and communicate effectively with other health professionals and ancillary personnel in meeting patient needs. Learning Objectives: 13. To demonstrate to the student the art of the practice of optometry as evidenced by the attending doctor/practitioner. 14. To widen the student's understanding of the spectrum of optometry by showing the student the clinical conditions (mental, physical and social, both acute and chronic) and their interaction with each other that make up the wide variety of health conditions in the community. 15. To demonstrate where legal, the use of common diagnostic and therapeutic procedures involved in the problem solving stages of the delivery of eye care. 16. To demonstrate the conscious and purposeful use and development of the doctor-patient relationship. 17. To demonstrate the comprehensive care of the family from infancy to the aged, particularly in highly susceptible groups. 18. To demonstrate the effect of an individual vision problem on the entire family. 19. To demonstrate the role of the "health team" in patient management and continuity of care including relationships with other health professionals and agencies. 20. To demonstrate preventive optometry and the importance of early diagnosis of ocular and vision anomalies, including ocular-related disorders. 21. To demonstrate the practical approach of the primary care optometrist to health maintenance. 22. To demonstrate the role of the optometrist in patient education. 23. To demonstrate the changing patterns of optometric care and familiarize the student with emerging patterns of eye care delivery. 24. To provide practical experience in the office management and business aspects of optometric practice. 25. To demonstrate the civic involvement a professional owes to his community.
Course Outline	:	Schedule of different rotation centers depending on institutions accreditation
Equipment and		25. Direct Ophthalmoscope

Materials		26. Binoclar Indirect Ophthalmoscope 27. 20 D Condensing Lens 28. REtinoscope 29. Penlight / Transilluminator 30. Trial lens set 31. Trial frame 32. Near point test chart (S) 33. Occluder 34. Millimeter rule 35. Confrontation test object 36. 'Fixation test object 37. Metric/English tape measure 38. Fusion test 39. Stereo test 40. Stethoscope 41. Sphygmonometer 42. Optical screw driver 43. Lens clock 44. 7x Comparator 45. Suction cup (Greeny) 46. Projector slide 47. PMMA Contact Lens Fitting set 48. Goldman 3 mirror

Course Name	:	**SEMINAR II**
Course Description	:	The Student would be assigned a topic to expound on based on the current issues published in optometric journals, seminars, conferences, grand rounds, symposia, and forums.
Course Credit	:	1 unit (lec)
Contact Hours	:	1 hour per week
Pre-requisite	:	Seminar 1
Placement	:	4^{th} year 2^{nd} semester
Course Objectives	:	1. To train the students to become effective educators by requiring them to report in formal or a stimulated formal venue using appropriate audio-visual equipment with the department heads and faculty in attendance. 2. To expose the students to various fields of interest in optometry and help them to align themselves to a specific field of specialization in the future. 3. To stimulate and develop the habit of updating oneself through journal readings.
Course Outline:		I. Current Trends a. Low Vision and Rehabilitation b. Contact Lens

		c. Optometry Curricullum d. Binocular Vision and Pediatrics e. Genetic Optometry f. Optics and Instrumentation g. Optometry and Eye Diagnostics h. Optometric Pharmacology i. Prosthetics j. Clinical set ups II. Weekly Journal Readings and Reports III. Electronic Journal Cases a. Ocular Diseases b. Contact Lenses c. Binocular Vision and Pediatrics d. Low Vision Rehabilitation e. Tele-Optometric Medicine IV. Culmination Activity: Seminar
Materials & Supplies		See Appendix B
Textbook and References		Optometry Journals- Optometry and Vision Science; Contact Lens Spectrum, Optometric Management; Eyecare Business; Clinical and Experimental Optometry; Optometric Education