ALAGAPPA UNIVERSITY

(Accredited with A+ Grade by NAAC (CGPA : 3.64) in the Third Cycle)
DIRECTORATE OF COLLABORATIVE PROGRAMMES

DIPLOMA IN OPHTHALMIC TECHNIQUE

Regulations and Syllabus

[For those who join the Course in July 2016 and after]

GENERAL INSTRUCTIONS AND REGULATIONS

Diploma in Ophthalmic Technique conducted by Alagappa University, Karaikudi, Tamil Nadu through its Collaborative Institution _____ at _____.

Applicable to all the candidates admitted from the Academic year **2016** onwards.

1. **Eligibility:**

   A pass in HSC or Equivalent preferable with Biology or Botany or Zoology by the Syndicate for admission to **Diploma in Ophthalmic Technique**.

2. **Admission:**

   Admission is based on the marks in the qualifying examination.

3. **Duration of the course:**

   The course shall extend over a period of **two years** under **non-semester pattern.**

4. **Standard of Passing and Award of Division:**
   a. Students shall have a minimum of 40% of total marks of the University examinations in each subject. The overall passing minimum is 40% both in external and aggregate of Continuous Internal Assessment and external in each subject.
   b. The minimum marks for passing in each theory / Lab course shall be 40% of the marks prescribed for the paper / lab.
   c. A candidate who secures 40% or more marks but less than 50% of the aggregate marks prescribed for two years taken together, shall be awarded **THIRD CLASS.**
   d. A candidate who secures 40% or more marks but less than 60% of the aggregate marks prescribed for two years taken together, shall be awarded **SECOND CLASS.**
   e. A candidate who secures 60% or more of the aggregate marks prescribed for two years taken together, shall be awarded **FIRST CLASS.**
   f. The Practical / Project shall be assessed by the two examiners, by an internal examiner and an external examiner.

5. **Continuous internal Assessment:**
   a. Continuous Internal Assessment for each paper shall be by means of Written Tests, Assignments, Class tests and Seminars
   b. **25 marks** allotted for the Continuous Internal assessment is distributed for Written Test, Assignment, Class test and Seminars.
   c. Two Internal Tests of 2 hours duration may be conducted during the semester for each course / subject and the best marks may be considered and one Model Examination will be conducted at the end of the semester prior to University examination. Students may be asked to submit at least five assignments in each

subject. They should also participate in Seminars conducted for each subject and marks allocated accordingly.

d. Conduct of the continuous internal assessment shall be the responsibility of the concerned faculty.
e. The continuous internal assessment marks are to be submitted to the University at the end of every year.
f. The valued answer papers/assignments should be given to the students after the valuation is over and they should be asked to check up and satisfy themselves about the marks they have scored.
g. All mark lists and other records connected with the continuous internal assessments should be in the safe custody of the institution for at least one year after the assessment.

6. Attendance:

Students must have earned 75% of attendance in each course for appearing for the examination.

Students who have earned 74% to 70% of attendance to be applied for condonation in the prescribed form with the prescribed fee.

Students who have earned 69% to 60% of attendance to be applied for condonation in the prescribed form with the prescribed fee along with the medical certificate.

Students who have below 60% of attendance are not eligible to appear for the examination. They shall re-do the semester(s) after completion of the programme.

7. Examination:

Candidate must complete course duration to appear for the university examination. Examination will be conducted with concurrence of Controller of Examinations as per the Alagappa University regulations. **University may send the representatives as the observer during examinations.** University Examination will be held at the end of the each semester for duration of 3 hours for each subject. Certificate will be issued as per the AU regulations. **Hall ticket will be issued to the 1st year candidates and upon submission of the list of enrolled students along with the prescribed course fee subsequent 2nd year hall tickets will be issued.**

8. Question Paper pattern:

Maximum: 75 Marks	Duration: 3Hours
Part A - Short answer questions with no choice	: 10 x 02=20
Part B – Brief answer with either or type	: 05 x 05=25
Part C- Essay – type questions of either / or type	: 03 x 10=30

9. Miscellaneous

a. Each student posses the prescribed text books for the subject and the workshop tools as required for theory and practical classes.
b. Each student is issued with an identity card by the University to identify his / her admission to the course
c. Students are provided library and internet facilities for development of their `studies.
d. Students are to maintain the record of practicals conducted in the respective laboratory in a separate Practical Record Book and the same will have to be presented for review by the University examiner.
e. Students who successful complete the course within the stipulated period will be awarded the degree by the University.

10. Fee structure

Course fee shall be as prescribed by the University and 50% of the course fee should be disbursed to University. Special fees and other fees shall be as prescribed by the Institution and the fees structure must intimated to the University. Course fees should be only by Demand draft / NEFT and AU has right to revise the fees accordingly.

Non-semester Pattern

Examination	Course Fee payment deadline
April / May	Fee must be paid before 30th October of the academic year

11. Other Regulations:

Besides the above, the common regulation of the University shall also be applicable to this programme.

Diploma in Ophthalmic Technique

Semester	Subject Code	Subject	Int.	Ext.	Total
I	11	Fundamental Science	25	75	100
	12	Physical , Geometric and Visual Optics	25	75	100
	13	Eye Disease and Ophthalmic Practice	25	75	100
	14	Optometric Instruments	25	75	100
II	21	Practical	25	75	100
	22	Internship & Viva Voce	25	75	100
		Total	**150**	**450**	**600**

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DIPLOMA COURSE IN OPHTHALMIC TECHNIQUES

11 - Paper I – FUNDAMENTAL SCIENCES

Unit 1 : Anatomy

The Conjunctivitis - Cornea – Sclera – Anterior Chamber and Angle of Anterior Chamber – Posterior Chamber - Aqueous Humour - Uvea – Retina – Optic Nerve – Vitreous – Lacrimal system - Extra Ocular Muscles - Visual pathway – Pupil

Unit 2: Physiology

Physiology Normal vision – Colour Vision – Binocular Single Vision – Aqueous Humuor – Formation and Circulation of Aqueous Humour – Accommodation – Intra Ocular Pressure – Maintenance - Corneal Transparency – Tears

Unit 3: Microbiology

Morphology and Basic Characteristics of Specific Bacteria – Fungi and Virus – Microscopical Examination of Organisms – Staining – Culture Media – Specimen Collection infectious ocular flora

Unit 4: Pharmacology

Types of drugs - Systemic topical and parenteral – Strength – dose – Action – side effects

Unit 5: Pathology & Bio Chemical aspects

Pathological Picture of the common eye diseases

Reference Books:

1. Anatomy & Physiology of the Eye – A.K.Khurana- 1st edition.
2. Text book of Microbiology - R.Anandhanarayanan , C.K.J.Panikar- 7th edition
3. Essentials of medical Pharmacology – K.D.Tripathi – 4th edition

Textbook of Pharmacology – Murugesh.N – 7th edition.

4. Text book of Pathology – Harsh Mohan – 4th edition.

12 - Paper II – REFRACTION

Unit – 1 Refraction

Laws of refraction – Refractive index – Refractive Index of different media subjective and objective Refraction- Retinoscope - Place mirror – Streak – their description and use – Use of Retinoscope refraction myopic, hyperopic, astigmatism (simple and mixed) presbyopic Explanation of "width" and "against" motions in retinoscopy plane and concave mirror Evaluation of refractive errors of children – Prescription of glasses – Writing down prescription equivalent lenses for astigmatism – Specification of axis – IPD measurement importance IPD inspectacle prescription.

Unit – 2 Spherical lenses

Different type identification – refraction of light through a lens – Power of a lens – Formation of images using lenses – Characteristics of images – Real, virtual – Magnification – Cylindrical lens – power – Crossed cylinder – Spherical equivalent – Rotation of cylindrical lens – Spherocylical lenses sturms conoid – Prisms – Path of a ray of light through a prism – Deviation – Power of a prism prismatic power of a lens – Use of prisms – Measurement power of lens – Neutralisation method – Lensometer (foci meter) construction and use. Diffraction & Interference Polarization

Unit – 3 Trial set

Accessories jacksons cross cylinder Maddox rod – Pinhole – Masks – Snellen's Charts – Drum their descriptor and use – Visual acuity – Notations & Recording – Measurement – Relationship between sizes of letters and the thickness – Definition of blindness. Dynamic RetinoScope

Unit – 4 Visual fields

Use of perimeter – Low vision aids

Unit – 5 Intra Ocular Lens

Contact lens fitting – A Scan - Keratometer

Reference Books:

1. Practice of Refraction – Duke elders – Vol III
2. Optics & Refraction –A.K.Khurana – 3rd edition
3. Textbook of Optics – Subramanyan & Brijilal – 1st edition

13 - Paper III – EYE DISEASES AND OPHTHALMIC PRACTIC

Unit 1 Diseases of the orbit – Lids – Lacrimal Apparatus – Motility of Eye
Orbital Cellulitis – Blepharitis – Ulcerative – Squamous – Hordeclum – internum chalazion – trichiasis – Entropion – Ectropion – Chronic Dacryocystitis – Acute dacryocystitis Dacryocystectomy – Dacryocystorhinostomy – Squint – Paralytic Squint – Comitant squint – Divergent Squint – Investigation – Treatment – Amblyo scopes – Treatment of Ocular emergencies

Unit – 2 Diseases of the Conjunctiva & Types
Acute Catarrhal or Mucopurulent Conjunctivitis Purulent conjunctivitis – Ophthalmia Neonatorum – Membranous conjunctivitis – Trachoma – Phlectenular conjunctivitis – Spring vernal conjunctivitis – Pingnecula – Pterygium – Xerosis

Unit – 3 Diseases of the Cornea – Sclera – Uveal Tract
Keratitis – Corneal ulcer – Hypopyon ulcer – Bacterial fungal and viral – Marginal Phlectenular Keratitis – Viral keratitis – Episcleritis – Scleritis – Irifocyclitis – Purulent Panophthalmitis Endophthalmitis

Unit – 4 Diseases of the Lens
Congenital Cataract – Development Cataract – Zonular Cataract acquired Cataract – Senile Cataract – Cortical Cataract – Nuclear Cataract – Complicated Cataract – Diabetic Cataract – Cataract - After the Secondary Cataract.

Unit – 5 Glaucoma Diseases of Retina – Optic Nerve Injuries
Congenital Glaucoma – Buphthalmos – Primary open angle Glaucoma – Closed Glaucoma Secondary Glaucomas – Investigations – Provocative tests. Diurnal variation treatment – defect – Medical and surgical treatment – Hypertensive Retinopathy – Diabetic Retinopathy – Renititis Pigmentosa – Optic Neuritis – Optic Atrophy consecutive Optic – Glaucomatous Optic Atrophy – Extra Ocular foreign body – Burns – Chemical – Thermal – Conduction injuries – perforating injuries – Sympathetic Ophthalmitis.

Reference Books:

1. Basic Ophthalmology – Samar K.Basak.
2. Ophthalmology- A.K.Khurana
3. Clinical Ophthalmology – Kanski – 2nd edition

14 - Paper IV – OPTOMETRIC INSTRUMENTS

Unit -1 Knowledge of Maintenance of
Ophthalmoscope – Direct & Indirect – Tonometers – Slit lamp – Operating Microscopes – Keratometer ,A-scan

Unit – 2 Knowledge and Maintenance of
Cataract Surgical Instruments – IOL Surgical Instruments – Glaucoma Surgery Instruments

Unit – 3 Knowledge and Maintenance of
Spot Retinoscopes – Streak Retinoscopes – Perimeters – Bjerrum Screen – Gonioscope 3 Mirror lens Dark Room Maintenance for Retinoscopies and its Principles – Snellen's test type screen

Unit – 4 Knowledge and Maintenance of
Amblyoscopes – Red green goggles with charts – Laboratory Maintenance – Microscopes to defect corneal ulcer causative organisms – Blood Sugar – Glucometer – Maintenance – Urine sugar – Defection – Artificial Eye

Unit – 5 Knowledge and Maintenance of
Sutures Calgur – Sutures – Silk – Nylon – BP Apparatus - Thermometers – distant Vision Charts Near vision chart – Cross cylinders – Prism bar – RAF Ruler – Hess Screen – Conducting Screening and Refraction eye camps

Reference Books:

1. Optics & Refraction- A.K.Khurana
2. Optometric Instrumentation – David B Henson
3. Ophthalmology – A.K.Khurana.

21 PRACTICALS

Patient Management – Investigation – Vision – Drug Administration

Refraction & Retinoscopy – Improvement with Glasses – Pin hole test or Maddoxrod – Cross cylinders – Astigmatism Correction – Squint Correction – Retinoscopy by spot and streak retinoscopes – Dry and Wet Retinoscopy

Instrument Maintenance – Maintenance of Ophthalmoscopes – Direct & Indirect – Tonometers Slit lamp – Operating Microscopes – Keratometer – A Scan – Surgical Instruments Streak Retinoscope – Perimeters – Amblyoscope – Glucometer – Goniscope

Community Ophthalmology – Eye Camps – Community survey – Eye Health Education