STUDY & EVALUATION SCHEMES

OF

BACHELOR OF OPTOMETRY (BO)

(BO – V SEMESTER)

[Applicable w.e.f. Academic Session 2020-21]

INTEGRAL UNIVERSITY, LUCKNOW

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Syllabus approved by Board of Study, Faculty Board, Academic Council, Executive Council of the Integral University, Lucknow

INTEGRAL UNIVERSITY, LUCKNOW

INTEGRAL INSTITUTE OF ALLIED HEALTH SCIENCES & RESEARCH
DEPARTMENT OF PARAMEDICAL & HEALTH SCIENCES

STUDY & EVALUATION SCHEME
BACHELOR OF OPTOMETRY (BOPT)
(w.e.f. July 2020)

III -Year **V-Semester**

S. No	Code	Name of the Subject	Periods			Credits	Evaluation Scheme				Subject Total
							Sessional			Exam	
			L	T	P		CT	TA	Total	ESE	
1.	BO301	Contact Lens – I	3	1	0	4	25	15	40	60	100
2.	BO302	Geriatric Optometry & Pediatric Optometry	3	1	0	4	25	15	40	60	100
3.	BO303	Binocular Vision – I	3	1	0	4	25	15	40	60	100
4.	BO304	Systemic Disease & the Eye	3	1	0	4	25	15	40	60	100
5.	BO305	Occupational & Community Optometry	3	1	0	4	25	15	40	60	100
6.	BO306	Contact Lens –Lab	0	0	2	1	30	30	60	40	100
7.	BO307	Geriatric Optometry & Pediatric Optometry-Lab	0	0	2	1	30	30	60	40	100
8.	BO308	Hospital Posting	0	0	6	3	30	30	60	40	100
		Total	**15**	**05**	**10**	**25**	**215**	**165**	**380**	**420**	**800**

L: Lecture **T:** Tutorials **P:** Practical C: Credit **CT:** Class Test

TA: Teacher Assessment **ESE:** End Semester Examination

Sessional Total: Class Test + Teacher Assessment

Subject Total: Sessional Total + End Semester Examination (ESE)

Subject name: Contact Lens-I
Subject Code: BO301
(w.e.f July 2020)

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Learning objective: To enable the students to have knowledge in both theoretical and practical aspects of Contact Lenses.

UNIT-I:

1. Review of Anatomy & Physiology of Tear film, cornea
2. Definition of Contact lens &various Classification
3. Optics & design of RGP Contact Lenses
4. Vertex distance calculation

UNIT-II:

1. Introduction **&** types of RGP materials
2. Properties of various RGP materials-Physiological, Physical, Optical
3. Manufacturing technique of CL
4. Indication & contraindication of RGP
5. Selection of parameters of RGP
6. Effect of change in parameters of RGP

UNIT-III:

1. Insertion & removable of RGP
2. Pre- fitting evaluation
3. Fitting assessments (dynamic & static)
4. Properties of Types of fit (steep, optimal, flat)
5. Tear lens calculation
6. Calculation (SAM, FAP) & finalization of RGP
7. Calculation & finalization of RGP

UNIT-IV:

1. Common handling instructions
2. Do's & Don't of RGP
3. Care & maintenance of RGP
    a. Cleaning
    b. Rinsing
    c. Disinfecting (one step & two step)
    d. Protein removers
    e. MPS

UNIT-V:

1. Types of contact lens deposit
2. Complications
    a. Inflammation & staining related
    b. Oedema & Hypoxia related
    c. Mechanical & pressure related
3. Management of Complications

RECOMMENDED BOOKS:

*** Latest editions of all the suggested books are recommended.**

SUBJECT NAME: Geriatric Optometry & Pediatric Optometry

SUBJECT CODE: BO302

(w.e.f July 2020)

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Learning Objective-The objective of the course is to provide the students with the knowledge of general and ocular physiological changes of ageing, common geriatric systemic and ocular diseases, clinical approach of geriatric patients and spectacle dispensing aspects in ageing patients as well as the development of the eye and vision, vision assessment and management of vision disorder in pediatric patients.

UNIT-I:

- Structural, and morphological changes of eye in elderly
  systemic diseases (Hypertension, Atherosclerosis, coronary heart disease, congestive Heart failure, Cerebrovascular disease, Diabetes, COPD)

UNIT-2:

- Optometric Examination ofthe Older Adult
  Ocular diseases common in old eye, with special reference to cataract, glaucoma, macular disorders, vascular diseases of theeye

UNIT-3:

- Contact lenses in elderly,
- Low vision causes, management and rehabilitation in geriatrics
- Spectacle dispensing in elderly – Considerations of spectaclelenses and frames

UNIT-4:

- The Development of Eye and Vision
- History taking Pediatric subjects
- Assessment of visual acuity
- Determining binocular status,

UNIT-5:

- Normal appearance, pathology and structural anomalies of Orbit, Eye lids, Lacrimal system, Conjunctiva, Cornea, Sclera, Anterior chamber, Uveal tract, Pupil
- Pediatric eye disorders: Cataract, Retinopathy ofPrematurity, Retinoblastoma

Text Books:

1. Paediatric Optometry –William Harvey/ Bernard Gilmartin, Butterworth – Heinemann, 2004

*** Latest editions of all the suggested books are recommended**

Reference Books:

1. OP Sharma: Geriatric Care –Atextbook of geriatrics and Gerontology, viva books, NewDelhi,2005
2. VS Natarajan: An update on Geriatrics,SakthiPathipagam,Chennai,1998
3. DE Rosenblatt, VS Natarajan: Primer on geriatric Care A clinical approachto the older patient, Printers Castle, Cochin,2002
4. Binocular Vision and Ocular Motility- VON NOORDEN G K BurianVonNoorden's, 2nd Ed., C.V. Mosby Co. St.Louis,1980
5. Assessing Children's Vision. By SusanJLeat, Rosalyn H Shute, Carol A Westall.45 Oxford: Butterworth- Heinemann,1999.
6. Clinical pediatric optometry. LJ Press, BDMoore,Butterworth-Heinemann,1993

SUBJECT NAME: Binocular Vision-I

SUBJECT CODE: BO303

(w.e.f July 2020)

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Learning objective- The objective of the course is to provide the students the basics of Binocular Vision and its clinical co-relation.

UNIT-I:

Binocular Vision and Space perception. Relative subjective visual direction. Retino motor value, Grades of BSV, SMP and Cyclopean Eye Correspondence, Fusion, Diplopia, Retinal rivalry Horopter, Physiological Diplopia and Suppression, Stereopsis, Panum's area, BSV. Stereopsis and monocular clues –significance, Egocentric location, clinical applications. Theories of Binocular vision

UNIT -2:

Anatomy of Extra Ocular Muscles. Recti and Oblique's, LPS, Innervation & Blood Supply, Physiology of Ocular movements. Center of rotation, Axes of Fick. Action of individual muscle. Laws of ocular motility Sherrington's law, Hering's law, Uniocular & Binocular movements - fixation, saccadic & pursuits. Version & Vergence. Fixation &field of fixation

UNIT-3:

Near Vision,
Accommodation: Definition and Mechanism, Types of Accommodation
Anomalies of Accommodation-Etiology and Management
Method of measurement of NPA

UNIT-4:

Convergence- Definition and Mechanism
Method of measurement of NPC
Types and components of Convergence-Tonic, Accommodative, Fusional & Proximal.
Anomalies of Convergence-Etiology and Management

UNIT -5:

Suppression-Investigation & Management
Blind spot Syndrome
Abronmal Retinal Correspondance
Eccentric Fixation
Amblyopia-Classification, etiology, investigation and management.

Text Books:

1. Binocular Vision and Ocular Motility - VON NOORDEN G K Burian Von Noorden's, 2nd Ed., C.V. Mosby Co. St. Louis,1980

*** Latest editions of all the suggested books are recommended.**

SUBJECT NAME: Systemic Disease & The Eye

SUBJECT CODE: BO304

(w.e.f July 2020)

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Learning Objective- This course deals with definition, classification, clinical diagnosis, complications and management of various systemic diseases. In indicated cases ocular manifestations also will be discussed.

UNIT-I:

- **Hypertension:** Definition, classification, Epidemiology, Clinical features, clinical examination & management. Hypertensive retinopathy &other Ocular manifestation of Hypertension.
- **Diabetes Mellitus:** Definition,Classification, clinical features, Diagnosis & Management. Diabetic Retinopathy &other Ocularmanifestation of Diabetes Mellitus

UNIT-2:

- **Thyroid Disease:** Physiology, testing for thyroid disease, Hyperthyroidism, Hypothyroidism**,** Grave's Ophthalmopathy & its otherOcular manifestation
- **Cancer:** Incidence, Etiology,classification, tumor & its types**,** Grading & staging of cancer, cancer Therapy.Ophthalmologicconsiderations
- **Connective Tissue Disease-** Rheumatic arthritis**,** Scleroderma**,** Sjogren's syndrome**,** Behcet's Disease**,** Eye and connective tissuedisease

UNIT-3:

- **HIV-AIDS-**Definition,clinical features, Diagnosis, Prevention & Management. Ocular manifestation of AIDS.

Syphilis- Definition,clinical features, Diagnosis & Management**.** Ocularmanifestation of Syphilis.

UNIT-4:

- **Tuberculosis-**Aetiology, pathology, clinical features, pulmonary tuberculosis, diagnosis & management. Ocular manifestation of Tuberculosis.
- **Malaria** Aetiology, pathology, clinical features & management.Ocular manifestation of Malaria.
- **Leprosy** Aetiology, pathology, clinical features &management.Ocular manifestation of Leprosy.

UNIT-5:

- **Toxoplasmosis:** Aetiology, pathology, clinical features & Its OcularManifestation
  Vitamin A Deficiency: Xerophthalmia& Its WHO classification

Text Books:

1. C Haslett, E R Chilvers, N A boon, N R Coledge, J A A Hunter: Davidson's Principles and Practice of Medicine,Ed. John Macleod, 19th Ed., ELBS/Churchill Livingstone.(PPM), 2002

*** Latest editions of all the suggested books are recommended**

SUBJECT NAME: Occupational & Community Optometry

SUBJECT CODE: BO305

(w.e.f July 2020)

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3	1	0

Learning objective-The objective of this course is to provide knowledge of general aspects of occupational health, Visual demand in various jobs, task analyzing method, visual standards for various jobs, occupational hazards and remedial aspects.

UNIT-I:

Introduction to Occupational health, hygiene and safety, international bodies like ILO, WHO, Factories Act, WCA, ESI Act.

UNIT-2:

Electromagnetic Radiation and its effects on Eye.

Occupational hazards and preventive/protective methods.

Industrial Vision Screening – Modified clinical method and Industrial Vision test, **Vision Standards** – Railways, Roadways,and Airlines.

Visual Display Units

UNIT-3:

Eye in primary health care, Community Eye Care Programs, Community based rehabilitation programs. Nutritional Blindness with reference to Vitamin A deficiency, Vision 2020: The Right to Sight, Screening for eye diseases, National and International health agencies, NPCB.

UNIT-4:

Role of an optometrist in Public Health, Organization and Management of Eye Care Programs – Service Delivery models, Eye Health manpower and planning.

UNIT-5:

Optometrists role in school eye health programmes, Basics of Tele Optometry and its application in Public Health, Information,
Education and Communication for Eye Care programs.

Text Books:

1. C Haslett, E R Chilvers, N A boon, N R Coledge, J A A Hunter: Davidson's Principles and Practice of Medicine,Ed. John Macleod, 19th Ed., ELBS/Churchill Livingstone.(PPM), 2002

*** Latest editions of all the suggested books are recommended.**

SUBJECT NAME: Contact Lens- Lab

SUBJECT CODE: BO306

(w.e.f July 2020)

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Course Content:

- Measurement of Oculardimensions
- Pupillary diameter and lid characteristics
- Blink rate and TBUT
- Schrimer's test, Slit lamp examination of tear layer
- Keratometry
- Placido'sdisc
- Soft Contact Lens fitting –Aspherical
- Soft Contact Lens fitting – Lathe cut lenses
- Soft Contact Lens over refraction
- Lens insertion and removal
- Lens handling and cleaning
- Examination of old soft Lens
- RGP Lens fitting
- RGP Lens Fit Assessment and fluorescein pattern
- Special RGP fitting (Aphakia, pseudo phakia &Keratoconus)
- RGP over refraction and Lens flexure
- Examination of old RGP Lens
- RGP Lens parameters,
- Slit lamp examination of Contact Lens wearers

SUBJECT NAME: Geriatric & Pediatric Optometry- Lab

SUBJECT CODE: BO307

(w.e.f July 2020)

L	T	P
3	1	0

Course Content:

- Deals with hand-on session the different geriatric and pediatric evaluation techniques

SUBJECT NAME: Hospital Posting Lab

SUBJECT CODE: BO308

(w.e.f July 2020)

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Course Content:

- The course provides students the opportunity to continue to develop confidence and increased skill in diagnosis and treatment delivery. Students will demonstrate competence in basic, intermediate and advance procedure in those areas. Students will participate in advance and specialized diagnostic and management procedure. Students will get practical experience of the knowledge acquired from geriatric and paediatric optometry courses. Hands-on experience under supervision will be provided in various outreach programme namely, school vision screening, glaucoma and diabetic retinopathy screening etc., Students also get hand-on practical sessions on the following courses namely, contact lens, low vision care, geriatric optometry and paediatric optometry.