Shri Rawatpura Sarkar University, Raipur

Examination Scheme & Syllabus

for

BACHELOR OF OPTOMETRY

SEMESTER-IV

(Effective from the session: 2022-23)

Faculty of Science
Shri Rawatpura Sarkar University, Raipur
Bachelor of Optometry
Semester-IV
Examination Scheme

S. No.	Course Code	Course Title	Hours / Week			Credits	Maximum Marks			Sem End Exam Duration (Hrs)
			L	**T**	**P**		Continuous Evaluation	Sem End Exam	Total	
1.	SBS07401T	Binocular Vision		4		4	30	70	100	3
2.	SBS07402T	Ocular Diseases		4		4	30	70	100	3
3.	SBSO7403T	Dispensing Optics		4		4	30	70	100	3
4.	SBS07404T	Nutrition and medical Psychology		4		2	15	35	100	3
5.	SBS07491P	Lab Course X : Binocular Vision			4	2	15	35	50	5
6.	SBS07492P	Lab Course XI: Dispensing Optics			4	2	15	35	50	5
7.	SBS07493P	Lab Course XII: Visual Optics			4	2	15	35	50	5
	TOTAL			16	12	22			550	

Bachelor of Science in Optometry
Semester-IV
2021-22

Course Title	**BINOCULAR VISION**				
Course Code	SBS07401T				
Course Credits	**L**	**T**	**P**	**TC**	
	4			**4**	
Prerequisites	**Basic knowledge of Binocular vision.**				
Course objective	Objective of binocular vision are describe and account for the external muscles of the eye - their processes, function and movements, innervation and vascular supply, carry out and interpret the results in an ocular motion test, describe and account for human power of accommodation - how it is encouraged and changed with age, and describe and account for pupil responses and how these are interconnected with accommodation, carry out and interpret the results of an ocular accommodation test (push-up) and of a static and dynamic pupil response test, describe, account for and reflect on the binocular vision.				
Course Contents	**UNIT-I** Spatial sense, Evolution of binocular vision, Binocular fusion, suppression, rivalry 2 and summation. **UNIT-II** Visual direction, local sign and corresponding points, Visual distance, empirical cues, Panum‟s space. **UNIT-III** Stereopsis, Developmental binocular vision, Anatomy of EOM and actions. **UNIT-IV** Longitudinal horopter, Neural aspects of binocular vision, Visually guided behavior and aniseikonia**,** ARC & Eccentric Fixation, Experiment – To plot the Horopter, fixation disparity curve. **UNIT-V** Electro –Physiology experiments, Differential Intensity (Webner‟s and Fechner‟s Law), Visual Acuity in relation to intensity and contrast, Near				

	Vision Complex Accommodation.
Course outcomes	Describe and account for human power of accommodation - how it is encouraged and changed with age, and describe and account for pupil responses and how these are interconnected with accommodation.
Text books	1. Guyton, A.C. & Hall, J.E. (2006). 2. Textbook of Medical Physiology. XI Edition. 3. Hercourt Asia PTE Ltd. /W.B. Saunders Company.
Reference books	1. Tortora, G.J. & Grabowski, S. (2006). Principles of Anatomy & Physiology. XIEdition John Wiley & sons 2. Victor P. Eroschenko. (2008). diFiore's Atlas of Histology with Functionalcorrelations. XII Edition. Lippincott W. & Wilkins.

Course Title	**NUTRITION & MEDICAL PSYCOLOGY**				
Course Code	SBS07402T				
Course Credits	**L**	**T**	**P**	**TC**	
	4			**4**	
Prerequisites	**Basic knowledge of Nutrition.**				
Course objective	Nutritional psychology is an emerging field of work that is a specialization in the field of health psychology. Nutritional psychology is a relatively new area of practice within the realm of the likewise relatively young area of health psychology. Health psychology only emerged in the middle of the last century and has since grown rapidly in popularity.				
Course Contents	**UNIT-I** INTRODUCTION: History of Nutrition Nutrition as science Food groups, FDA, Balanced diet, diet planning Assessment of nutritional status, ENERGY: Units of energy, Measurements of energy and value of food, Energy expenditure, Total energy/calorie requirement for different age groups and diseases Satiety value, Energy imbalance- obesity, starvation, Limitations of the daily food guide. **UNIT-II** PROTEINS: Sources and functions, Essential and non- essential AA Incomplete and complete proteins Supplementary foods, PEM and the, eye				

	Nitrogen balance, Changes in protein requirement, FATS, Sources and functions Essential fatty acids Excess and deficiency Lipids and the eye, Hyperlipidemia, heart diseases, atherosclerosis, MINERALS: General functions and sources, Macro and micro minerals associated with the eye, Deficiencies and excess – ophthalmic complications (e.g. iron, calcium, iodine etc.). **UNIT-III** General functions, and food sources3 Vitamin deficiencies and associated eye disorders with particular emphasis to VitaminA, Promoting sound habits in pregnancy, lactation and infancy Nutrient with antioxidant Properties, Digestion of Proteins, carbohydrates & lipids, Essential amino acids Miscellaneous-Measles and associated eye disorders, low birth weight**.** **UNIT-IV** **Medical Psycology** Introduction to medical psychology: definitions-schools of thought; fields of psychology, Eye diseases- their impact on the patient. **UNIT-V** The patient‟s adaptation to variants of normalcy in vision – prejudices and biases, Rehabilitation of the blind.
Course outcomes	Increased interest in the prevention of illness and the role that diet plays in the development of illness have fueled the growth of nutritional psychology as well. Despite unprecedented levels of material wealth, or perhaps because of it, we as people fail to live a healthy lifestyle.
Text books	1. Food & Nutrition Paperback – 1 January 2012 by Ruma Singh (Author) 2. Handbook of Nutrition and the Kidney (Books) Paperback – 1 March 2002 by William E. Mitch (Editor), Saulo Klaur (Editor)
Reference books	1. CARBOHYDRATES - Don't Run Away - I AM NOT BAD AT ALL: Insight of the super macro (NUTRITION) [Print Replica] Kindle Edition by Rahul Kharbanda (Author) 2. Prescription for Nutritional Healing: the A to Z Guide to Supplements: Everything You Need to Know About Selecting and Using Vitamins, Minerals, Healing: A-To-Z Guide to Supplements) Paperback – 28 December 2010 by Phyllis A. Balch CNC (Author)

Bachelor of Science in Optometry
Semester-IV
2021-22

Course Title	**DISPENSING OPTICS**				
Course Code	SBS07403T				
Course Credits	**L**	**T**	**P**	**TC**	
	4			**4**	
Prerequisites	**Basic knowledge of Spectacles and optics.**				
Course objective	Optical dispensing is a subspecialty of optometry which includes all procedures from the time the glass prescription is presented to the optician till the patient receives the pair of glasses satisfactorily.The objective of this course is to develop the optician's skills and knowledge for quality vision care services.				
Course Contents	**UNIT-I** Introduction to lens manufacture - Surfacing and polishing glass lenses**,** Glazing. **UNIT-II** Frame manipulation and repair, Facial measurements and frame choice. **UNIT-III** Power and measurements and frame choice. **UNIT-IV** Complete dispensing for subjects. **UNIT-V** Special lenses-examination of specimens.				
Course outcomes	The objective of this course is to develop the optician's skills and knowledge for quality vision care services. which includes all procedures from the time the glass prescription is presented to the optician till the patient receives the pair of glasses satisfactorily.				
Text books	1. System for Ophthalmic Dispensing Hardcover – 9 September 1996 by Clifford W. Brooks OD (Author), Irvin Borish OD DOS LLD				

	DSc (Author) 2. Dispensing Optics Paperback – 20 August 2015 by Bhootra Ajay Kumar (Author)
Reference books	1. Optician's Guide: A Manual For Opticians Paperback – 1 January 2018 by Bhootra Ajay Kumar (Author) 2. Clinical Optics and Refraction: A Guide for Optometrists, Contact Lens Opticians and Dispensing Opticians Paperback – 6 September 2007 by Andrew Keirl BOptom(Hons) MCOptom FBDO (Editor), Caroline Christie BSc(Hons) FCOptom DCLP (Editor) 3. System for Ophthalmic Dispensing Hardcover – 16 October 2006 by Clifford W. Brooks OD (Author), Irvin Borish OD DOS LLD DSc (Author)

Course Title	**OCULAR DISEASES**				
Course Code	SBS07404T				
Course Credits	**L**	**T**	**P**	**TC**	
	4			**4**	
Prerequisites	**Basic knowledge of ocular diseases.**				
Course objective	This course is an introduction to the way ophthalmologists approach and think about eye disease. Basic anatomy and simple descriptions of common eye disorders are presented. This course is designed to aid the beginning optometrist.				
Course Contents	**UNIT-I** GLAUCOMA: An over view of glaucoma, Aqueous humor dynamics, Intraocular pressure. . **UNIT-II** Evaluation of the optic nerve head, Visual fields, Glaucoma screening. **UNIT-III** Classification of glaucoma, Primary open angle glaucoma, Primary angle closure glaucoma, Primary congenital glaucoma, Secondary glaucoma.				

	UNIT-IV Principles of medical therapy, Other modalities of glaucoma treatment, HRT, OCT, GDx. **UNIT-V** Refractive Surgeries, LASERS.
Course outcomes	Identify the components of the visual system and functions. Identify the site and nature of action of simple pathological conditions. Basic anatomy and simple descriptions of common eye disorders are presented.
Text books	1. THE WILLS EYE HANDBOOK OF OCULAR GENETICS (PB 2018) Paperback – 1 January 2018 by LEVIN A.V. (Author) 2. Histologic Basis of Ocular Disease – 16 November 2018 by Bruce Grahn (Author), Robert Peiffer (Author), Brian Wilcock (Author)
Reference books	1. Pharmacologic Therapy of Ocular Disease (Handbook of Experimental Pharmacology) Hardcover – 16 June 2017 2. Diseases and Disorders of the Orbit and Ocular Adnexa Hardcover – 29 November 2016 by Aaron Fay MD (Author), Peter J Dolman MD FRCSC (Author) 3. Ocular Pathology (Expert Consult Title: Online + Print) Hardcover – 11 July 2014 by Myron Yanoff MD (Author), Joseph W. Sassani MD MHA (Author)

Course Title	**PRACTICAL BINOCULAR VISION**				
Course Code	**BSCOP605P**				
Course Credits	**L**	**T**	**P**	**TC**	
			4	**2**	
Prerequisites	**Practical knowledge about Binocular Vision.**				
Course Objectives	Objective of binocular vision are describe and account for the external muscles of the eye - their processes, function and movements, innervation and vascular supply, carry out and interpret the results in an ocular motion test, describe and account for human power of accommodation - how it is encouraged and changed with age, and describe and account for pupil responses and how these are interconnected with accommodation, carry out and interpret the results of				

	an ocular accommodation test (push-up) and of a static and dynamic pupil response test, describe, account for and reflect on the binocular vision.
Course Contents	• FOUR DOT TEST • BAR TEST • SPECIAL TYPE OF DIPLOPIA • CONVERGENCE TEST • COVER TEST • DIPLOSCOPE TEST • STREREOPE TEST • DEPH ASSESSMENT • OPTOKYNETIC NYSTAGMUS • ACCOMODATION
Course outcome	Describe and account for human power of accommodation - how it is encouraged and changed with age, and describe and account for pupil responses and how these are interconnected with accommodation.
Text books	1. Guyton, A.C. & Hall, J.E. (2006). 2. Textbook of Medical Physiology. XI Edition. 3. Hercourt Asia PTE Ltd. /W.B. Saunders Company.
References books	1. Tortora, G.J. & Grabowski, S. (2006). Principles of Anatomy & Physiology. XIEdition John Wiley & sons 2. Victor P. Eroschenko. (2008). diFiore's Atlas of Histology with Functionalcorrelations. XII Edition. Lippincott W. & Wilkins.

Course Title	**PRACTICAL DISPENSING OPTICS**				
Course Code	**BSCOP605P**				
Course Credits	**L**	**T**	**P**	**TC**	
			4	**2**	
Prerequisites	**Practical knowledge about Dispensing Optics.**				

Bachelor of Science in Optometry
Semester-IV
2021-22

Course Objectives	Optical dispensing is a subspecialty of optometry which includes all procedures from the time the glass prescription is presented to the optician till the patient receives the pair of glasses satisfactorily.The objective of this course is to develop the optician's skills and knowledge for quality vision care services
Course Contents	• Finding out the meridian & optical center of ophthalmic lens by hand neutralization • Finding out the meridian & optical center of ophthalmic lens by lensmeter • Lens surfacing, edging, cutting and marking • Frame measurement: The boxing system, the datum system • Measuring interpupillary distance • Measuring height: Single vision, bifocal, multifocal, progressive lens.
Course outcome	The objective of this course is to develop the optician's skills and knowledge for quality vision care services. which includes all procedures from the time the glass prescription is presented to the optician till the patient receives the pair of glasses satisfactorily.
Text books	1. System for Ophthalmic Dispensing Hardcover – 9 September 1996 by Clifford W. Brooks OD (Author), Irvin Borish OD DOS LLD DSc (Author) 2. Dispensing Optics Paperback – 20 August 2015 by Bhootra Ajay Kumar (Author)
References books	1. Optician's Guide: A Manual For Opticians Paperback – 1 January 2018 by Bhootra Ajay Kumar (Author) 2. Clinical Optics and Refraction: A Guide for Optometrists, Contact Lens Opticians and Dispensing Opticians Paperback – 6 September 2007 by Andrew Keirl BOptom(Hons) MCOptom FBDO (Editor), Caroline Christie BSc(Hons) FCOptom DCLP (Editor) 3. System for Ophthalmic Dispensing Hardcover – 16 October 2006 by Clifford W. Brooks OD (Author), Irvin Borish OD DOS LLD DSc (Author)

Course Title	**PRACTICAL VISUAL OPTICS**

Bachelor of Science in Optometry
Semester-IV
2021-22

Course Code	**BSCOP605P**				
Course Credits	**L**	**T**	**P**	**TC**	
			4	**2**	
Prerequisites	**Practical knowledge about Optics.**				
Course Objectives	The aim of the course is to acquire the knowledge in geometrical optics necessary for its understanding and application in the courses of Optical and optometric instruments, Eye Optics, Refraction and binocular vision, Contact lenses and Optometric practice.				
Course Contents	- Study of Purkinje image I and II and III and IV. - Measurement of corneal curvature - Measurement of corneal thickness - Mathematical models of the eye- Emmetropia - Mathematical models of the eye- Hyperopia - Mathematical models of the eye- Myopia - Conjugate points – Demonstration- worked examples				
Course outcome	The candidates should demonstrate fundamental knowledge and insight into geometrical *optics* in order for the candidate to be able to understand and solve problems related to the eye and *optical* instruments/lenses, their function and correction.				
Text books	1. Handbook of Visual Optics, Two-Volume Set Kindle Edition by Pablo Artal (Editor) 2. Clinical Procedures for Ocular Examination, Fourth Edition Paperback – 16 January 2016 by Nancy Carlson (Author), Daniel Kurtz (Author)				
References books	1. Retinal Pigment Epithelium and Macular Diseases (Documenta Ophthalmologica Proceedings Series Book 62) Kindle Edition by Gabriel Coscas (Editor), Felice Cardillo Piccolino (Editor) 2. Clinical Procedures for Ocular Examination, Third Edition Paperback – 16 October 2003 by Nancy Carlson (Author), Daniel Kurtz (Author) 3. Instrumentation for Eyecare Paraprofessionals (The Basic Bookshelf for Eyecare Professionals) Paperback – 30 November 1998 by Michelle Herrin (Author)				