

# **Shri Rawatpura Sarkar University, Raipur**



## **Examination Scheme & Syllabus**

**for**

**MASTER IN OPTOMETRY**

**SEMESTER-II  
CBCS PATTERN**

(Effective from the session: 2021-22)



# Faculty of Science Shri Rawatpura Sarkar University, Raipur

## Master in optometry Semester-II Examination Scheme (Effective from the session: 2022-23)

### PROGRAM OUTCOME

1. Understood the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life.
2. Acquired the skills in handling scientific instruments, planning and performing in laboratory experiments. The skills of observations and drawing logical inferences from the scientific experiments.
3. Analyzed the given scientific data critically and systematically and the ability to draw the objective conclusions. Been able to think creatively (divergently and convergent) to propose novel ideas in explaining facts and figures or providing new solution to the problems.
4. Realized how developments in any science subject helps in the development of other science subjects and vice-versa and how interdisciplinary approach helps in providing better solutions and new ideas for the sustainable developments.
5. Developed scientific outlook not only with respect to science subjects but also in all aspects related to life. Can have greatly and effectively influence which inspires in evolving new scientific theories and inventions. Imbided ethical, moral and social values in personal and social life leading to highly cultured and civilized personality.
6. Developed various communication skills such as reading, listening, speaking, etc., which we will help in expressing ideas and views clearly and effectively.
7. Realized that pursuit of knowledge is a lifelong activity and in combination with untiring efforts and positive attitude and other necessary qualities leads towards a successful life

### PROGRAM SPECIFIC OBJECTIVE

1. To develop the students in such a way so that they can practice independently as a primary eye care practitioner and render eye care services for the benefit of society.
  2. To develop expertise in assessment, evaluation, planning, and inventions in achieving the eye care needs of Indian society.
  3. To develop such professionals who will actively participate in community optometry programs to achieve the goals of Vision 2020 and the national programs for the prevention of blindness and effectively organize and participate in vision screening eye camps to help controlling blindness.
  4. To create Postgraduate optometry teachers with strong academics and research background who will help develop the science of Optometry.
  5. To help the students to learn to maintain collaborative relationships with members of other disciplines to improve health care.
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**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

**Teaching and Examination Scheme**

S. N o.	Course Code	Course Title	Hours / Week			Credits	Maximum Marks			Sem End Exam Duration (Hrs)
			L	T	P		Continuous Evaluation	Sem End Exam	Total	
1.	SMS09201T	AdvanceOcular Diagnosis		4		4	30	70	100	3
2.	SMS09202T	Neuro Optometry		4		4	30	70	100	3
3.	SMS09203T	Low Vision Care & Rehabilitation		4		4	30	70	100	3
4.	SMS09204T	Research Methodology and Biostatistics		4		2	30	70	100	3
5.	SMS09291P	Clinics-II			4	2	30	70	100	5
6.	SMS09292P	Practical Low Vision Care & Rehabilitation			4	2	15	35	50	5
TOTAL				16	12	22			550	



**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

<b>Title</b>	<b>ADVANCE OCULAR DIAGNOSIS</b>				
<b>Code</b>	<b>SMS09201T</b>				
<b>Credit</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	
	<b>4</b>			<b>4</b>	
<b>Prerequisite</b>	Basic knowledge about Ocular diseases.				
<b>Objective</b>	Evidence based approach to Diagnosis, Clinical decision Making, Management and co management of anterior segment ocular diseases. Developing more reading ability of scientific journals for more evidence based management with recent understanding of diseases.				
<b>Content</b>	<p><b>UNIT – I</b></p> <p>Ability to perform and interpret corneal diagnostics including, Topography/Pentacam/Orbscan.</p> <p><b>UNIT – II</b></p> <p>Specular microscopy, Pachymetry, Abberometry, Gonioscopy, ONH evaluation, Ability to perform anterior segment photography.</p> <p><b>UNIT – III</b></p> <p>Ability to perform pre and post Lasik evaluation, Ability to interpret glaucoma diagnostic reports, OCT, HRT, AS OCT UBM, GDx.</p> <p><b>UNIT - IV</b></p> <p>Gonioscopy, ONH evaluation, Ability to perform anterior segment photography, Posterior segment ocular diseases, diagnosis and therapeutics, Surgical treatment of posterior segment diseases.</p> <p><b>UNIT – V</b></p> <p>Posterior segment Diagnostics: ERG, EOG, VEP, OCT, Fundus photography, Neuro</p>				

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# Faculty of Science Shri Rawatpura Sarkar University, Raipur

## Master in optometry Semester-II Examination Scheme (Effective from the session: 2022-23)

	optometric diseases and disorders.
<b>Outcomes</b>	<ul style="list-style-type: none"> <li>• Ability to perform corneal diagnostics</li> <li>• Ability to perform anterior segment photography.</li> <li>• Ability to perform pre and post Lasik evaluation</li> <li>• Surgical treatment of posterior segment diseases.</li> <li>• Neuro optometric diseases and disorders.</li> </ul>
<b>Text books</b>	<ol style="list-style-type: none"> <li>1. Handbook of Visual Optics, Two-Volume Set Kindle Edition by Pablo Artal (Editor)</li> <li>2. Clinical Procedures for Ocular Examination, Fourth Edition Paperback – 16 January 2016 by Nancy Carlson (Author), Daniel Kurtz (Author)</li> </ol>
<b>Reference books</b>	<ol style="list-style-type: none"> <li>1. Retinal Pigment Epithelium and Macular Diseases (Documenta Ophthalmologica Proceedings Series Book 62) Kindle Edition by Gabriel Coscas (Editor), Felice Cardillo Piccolino (Editor)</li> <li>2. Clinical Procedures for Ocular Examination, Third Edition Paperback – 16 October 2003 by Nancy Carlson (Author), Daniel Kurtz (Author)</li> <li>3. Instrumentation for Eyecare Paraprofessionals (The Basic Bookshelf for Eyecare Professionals) Paperback – 30 November 1998 by Michelle Herrin (Author)</li> </ol>

<b>Title</b>	<b>NEURO OPTOMETRY</b>			
<b>Code</b>	<b>SMS09202T</b>			
<b>Credit</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>





**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

	4		4	
<b>Prerequisite</b>	Basic knowledge about Visual systems.			
<b>Objective</b>	The course is designed to help expand the student's knowledge base in all aspects of behavioral vision care. Advanced competency is expected in the following principles and procedures for each clinical condition.			
<b>Content</b>	<p><b>UNIT – I</b></p> <p>Strabismus and Amblyopia: Anisometric / Isometric Refractive Amblyopia, Strabismic Amblyopia, Form Deprivation Amblyopia, Differential diagnoses in childhood visual acuity loss.</p> <p><b>UNIT – II</b></p> <p>Strabismus: Esotropia- Accommodative, Acquired, Convergence Excess, Divergence Insufficiency, Non-accommodative, Exotropia- Divergence Excess, Convergence Insufficient. Ocular Motor Function: Eye movements and reading, Pursuit dysfunctions.</p> <p><b>UNIT – III</b></p> <p>Neurological / Psychological: Ambient / focal systems. Visual perceptual midline, Parvo cellular / Magno cellular function, Perceptual Style (central, peripheral), Impact of colored filters, Nystagmus Saccadic Dysfunctions.</p> <p><b>UNIT – IV</b></p> <p>Accommodation: Role in myopia development, Role in computer-related asthenopia, Acquired brain injury (traumatic brain injury and stroke). Developmental disabilities (Down Syndrome, Developmental delay, etc.), Visually induced balance disorders, Motor disabilities (Cerebral Palsy, ataxia, etc.), Behavioral disorders.</p> <p><b>UNIT – V</b></p> <p>Dyslexia and specific reading disabilities, Learning Disabilities, Computer Vision Syndrome, Significant findings which are good or poor prognostic indicators of vision therapy and lens, Application, Behavioral lens application, The relationship between the visual and vestibular systems.</p>			
<b>Outcomes</b>	<ul style="list-style-type: none"><li>• Differential diagnoses in childhood visual acuity loss.</li></ul>			



**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

	<ul style="list-style-type: none"><li>• For diagnosis of Strabismus</li><li>• The course is designed to help expand the students knowledge base in all aspects of behavioral vision care.</li><li>• Advanced competency is expected in the following principles and procedures for each clinical condition.</li><li>• The relationship between the visual and vestibular systems.</li></ul>
<b>Text books</b>	<ol style="list-style-type: none"><li>1. Curbside Consultation in Neuro-Ophthalmology: 49 Clinical Questions Paperback – 15 November 2008 by Andrew G. Lee (Editor), Paul W. Brazis (Editor), Lanning B. Kline (Editor)</li><li>2. Neuro-Ophthalmology (Rapid Diagnoses in Ophthalmology Series) Paperback – 29 November 2007 by Jonathan D. Trobe MD (Author)</li></ol>
<b>Reference books</b>	<ol style="list-style-type: none"><li>3. Pickwell's Binocular Vision Anomalies: Investigation and Treatment Paperback – 25 February 2002 by Bruce J. W. Evans BSc PhD FCOptom DipCLP DipOrth FAAO FBCLA (Author)</li><li>4. Ophthalmic Neuro-Myology; A Study of the Normal and Abnormal Actions of the Ocular Muscles from the Brain Side of the Question. a Study of the Normal ... Muscles from the Brain Side of the Question Paperback – 13 January 2012 by Giles Christopher Savage (Author)</li></ol>

<b>Title</b>	<b>LOW VISION CARE &amp; REHABILITATION</b>			
<b>Code</b>	<b>SMS09203T</b>			
<b>Credit</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>

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**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

	4		4	
<b>Prerequisite</b>	Basic knowledge about Low vision.			
<b>Objective</b>	Upon completion of the course, the student should be able to understand the best suitable low vision and functional assistive device for a particular condition and rehabilitation. This course gives both in-depth theoretical knowledge and clinical exposure in low vision care. The outcomes of this course are: Thorough understanding of the causes of +the low vision, its functional and psychosocial consequences. Help visually impaired individuals to utilize their residual visual skills optimally and rehabilitate.			
<b>Content</b>	<b>UNIT – I</b> Habilitation of Children and Youth with vision Impairment, Rehabilitation of working –age Adults with Vision Impairment. <b>UNIT – II</b> Rehabilitation of older Adults with Vision Impairment, Functional Evaluation of the Adult, Clinical Implications of color vision Deficiencies. <b>UNIT – III</b> Functional consequences of vision Impairment, Vision evaluation of Infants, Educational assessment of visual function in Infants and Children. <b>UNIT – IV</b> Functional orientation and Mobility, Functional Assessment of Low Vision for Activities of Daily living, Psychosocial assessment of adults with vision impairment. <b>UNIT - V</b> Assistive Devices and Technology for Low Vision, Assistive Devices and Technology for Blind, Vision and Reading - Normal Vs Low Vision.			
<b>Outcomes</b>	<ul style="list-style-type: none"><li>• To know Rehabilitation of working –age Adults with Vision Impairment</li><li>• To understand Clinical Implications of color vision Deficiencies</li><li>• To understand Educational assessment of visual function in Infants and</li></ul>			

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# Faculty of Science Shri Rawatpura Sarkar University, Raipur

## Master in optometry Semester-II Examination Scheme (Effective from the session: 2022-23)

	<p>Children</p> <ul style="list-style-type: none"> <li>• To understand Psychosocial assessment of adults with vision impairment</li> <li>• To understand Vision and Reading - Normal Vs Low Vision.</li> </ul>
<b>Text Books</b>	<ol style="list-style-type: none"> <li>1. Low Vision Aids Paperback – 1 January 2010 by Chaudhry (Author)</li> <li>2. Low Vision Aids Practice Paperback – 1 January 2007 by Bhootra (Author)</li> </ol>
<b>Reference Books</b>	<ol style="list-style-type: none"> <li>1. Management Of Vision Impairment(Low Vision, Vision Enhancement And Vision Rehabilitation) Paperback – 1 January 2010 by Ms Raju (Author)</li> <li>2. The Routledge Handbook of Visual Impairment (Routledge International Handbooks) Hardcover – 21 March 2019 by John Ravenscroft (Editor)</li> <li>3. International Ophthalmic Lens Year Book 1995: Spectacle Lenses and Low Vision Aids Paperback – 1 June 1995 by Christine Dickinson (Author), etc. (Author), Deike Grit (Author), Mo Jalie (Author)</li> </ol>

<b>Title</b>	<b>RESEARCH METHODOLOGY –II &amp; BIostatISTICS</b>				
<b>Code</b>	<b>SMS09204T</b>				
<b>Credit</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	
	<b>4</b>			<b>4</b>	
<b>Prerequisite</b>	Basic knowledge about Research methodology.				



**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

<b>Objective</b>	<p>This course is designed to provide the students the basic knowledge in Bio-statistics. At the conclusion of the course, the students will have the knowledge of data collection, statistical application and finally, presentation of the statistical data.</p>
<b>Content</b>	<p><b>UNIT – I</b> Need for Research in optometry, Introduction to research methods , Conducting a literature review , Research design ,Sampling methods , Data collection and data collection tools , Data analysis : Quantitative and Qualitatively. Public health research , Issues in Research, Probability distribution, Correlation and regression, Significance tests and confidence intervals, Probability distribution, Correlation and regression, Significance tests and confidence intervals</p> <p><b>UNIT – II</b> Writing skills for students, Introduction and method of collecting and presenting of statistical data, Calculation and interpretation of various measures like mean, median, standard deviations.</p> <p><b>UNIT – II</b> ANOVA:- One way, Two way, Parametric tests – Test for single proportion, Test for Equality of proportions, Test for single mean, Test for equality of means. Writing skills for students, Introduction and method of collecting and presenting of statistical data, Calculation and interpretation of various measures like mean, median, standard deviations.</p> <p><b>UNIT – III</b> Introduction to Biostatistics and Research methods in Vision science &amp; optometry, Introduction and method of collecting and presenting of statistical data. Non parametric tests –Chi-square tests, Fisher’s exact test, Median test, Sign test, Wilcoxon test, Introduction to grant writing and Proposal development in research.</p> <p><b>UNIT- IV</b></p>

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**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
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	Calculation and interpretation of various measures like mean, median, standard deviations. Probability distribution, Correlation and regression, Significance tests and confidence interval. Research manuscript writing and Thesis, Dissertation tools, in research. Conducting and consideration of research ethical approvals.
<b>Outcomes</b>	<ul style="list-style-type: none"><li>• To understand about techniques of optometry research</li><li>• The students will have the knowledge of data collection</li><li>• To know about ANOVA</li><li>• Introduction to Biostatistics and Research methods in Vision science</li><li>• Statistical application and finally, presentation of the statistical data.</li></ul>
<b>Text books</b>	<ol style="list-style-type: none"><li>1. Fundamentals of Research Methodology and Statistics Paperback – 1 January 2006 by Y.K. Singh (Author)</li><li>2. Research and Statistics Paperback – 9 June 2018 by Sharma Suresh (Author)</li><li>3. Research Methodology Paperback – 1 January 2013 by Panneerselvam R (Author)</li></ol>
<b>Reference books</b>	<ol style="list-style-type: none"><li>1. Textbook on Legal Methods, Legal Systems &amp; Research Paperback – 1 January 2015 by Saha Tushar Kanti (Author)</li><li>2. Biomedical Research Methodology :Including Biostatistical Applications Paperback – 1 January 2011 by Ranjan Das (Author)</li><li>3. How to Write a Research Proposal and Thesis: A Manual for Students and Researchers (How to Write a Research Proposal and a Thesis) Paperback – 8 March 2013 by Mohamed E. Hamid (Author)</li></ol>



**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

<b>Title</b>	<b>CLINICS-II</b>				
<b>Code</b>	<b>SMS09291P</b>				
<b>Credit</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>	
			2	2	
<b>Prerequisite</b>	Practical knowledge about Optometry diagnosis and treatments.				
<b>Objective</b>	The objective of clinics in this semester is to be able to gets hand-on experience related to diagnosis, interpretation of the reports/findings and management.				
<b>Content</b>	<p>The objective of clinics in this semester is to be able to gets hand-on experience related to diagnosis, interpretation of the reports/findings and management.</p> <p>An approximate of guided 240 hours needs to be completed in this semester. The students will be by rotation go to community clinics, Campus clinics, and associated hospital and optical / optometric clinics. The focus will be on the specialized subjects studies in this semester. The logbook has to be maintained and case sheets of each subject in the semester with complete management and follow up are mandatory for submission at the end of the semester.</p> <p><b>Note:</b> The log book needs to be signed by the Faculty during every visit. No case record will be considered without the Faculty's signature</p>				
<b>Course Outcomes</b>	The students will be by rotation go to community clinics, Campus clinics, and associated hospital and optical / optometric clinics. The focus will be on the specialized subjects studies in this semester.				

<b>Title</b>	<b>LOW VISION CARE &amp; REHABILITATION</b>
<b>Code</b>	<b>SMS09292P</b>

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**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

Credit	L	T	P	Total	
	2			2	
<b>Prerequisite</b>	Basic knowledge about Low vision.				
<b>Objective</b>	Upon completion of the course, the student should be able to understand the best suitable low vision and functional assistive device for a particular condition and rehabilitation. This course gives both in-depth theoretical knowledge and clinical exposure in low vision care. The outcomes of this course are: Thorough understanding of the causes of +the low vision, its functional and psychosocial consequences. Help visually impaired individuals to utilize their residual visual skills optimally and rehabilitate.				
<b>Content</b>	<ul style="list-style-type: none"><li>• Case history</li><li>• Assessment</li><li>• Application of devices</li><li>• Rehabilitation</li></ul>				
<b>Outcomes</b>	Upon completion of the course, the student should be able to understand the best suitable low vision and functional assistive device for a particular condition and rehabilitation.				
<b>Text Books</b>	<ol style="list-style-type: none"><li>1. Low Vision Aids Paperback – 1 January 2010 by Chaudhry (Author)</li><li>2. Low Vision Aids Practice Paperback – 1 January 2007 by Bhootra (Author)</li></ol>				
<b>Reference Books</b>	<ol style="list-style-type: none"><li>1. Management Of Vision Impairment(Low Vision, Vision Enhancement And Vision Rehabilitation) Paperback – 1 January 2010 by Ms Raju (Author)</li></ol>				

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**Faculty of Science**  
**Shri Rawatpura Sarkar University, Raipur**

**Master in optometry**  
**Semester-II**  
**Examination Scheme**  
**(Effective from the session: 2022-23)**

	<ol style="list-style-type: none"><li>2. The Routledge Handbook of Visual Impairment (Routledge International Handbooks) Hardcover – 21 March 2019 by John Ravenscroft (Editor)</li><li>3. International Ophthalmic Lens Year Book 1995: Spectacle Lenses and Low Vision Aids Paperback – 1 June 1995 by Christine Dickinson (Author), etc. (Author), Deike Grit (Author), Mo Jalie (Author)</li></ol>
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