

# **STUDY GUIDE**

## **FOR DISPENSING OPTICS**

**Units 1-9**

**CREDIT: HALF**

**Course Code 2432**

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**Vision Sciences Programme**

- Diploma in Vision Sciences of Ophthalmic Technicians
- B.Sc. in Vision Sciences
- B.Sc. Honours in Vision Sciences



**Department of Home & Health Sciences  
Allama Iqbal Open University  
Islamabad.**

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## LIST OF CONTENTS

	Structure of the Course	vii
	Welcome from Programme Coordinator	ix
	Introduction to the Course	x
<b>Unit-1</b>	Introduction to Dispensing Optics	1
<b>Unit-2</b>	Lenses for Spectacles	7
<b>Unit-3</b>	Assessing User Needs	13
<b>Unit-4</b>	Measurements for Spectacle Fitting	19
<b>Unit-5</b>	Frames	25
<b>Unit-6</b>	Collections, Common Problems with Spectacles and their Remedy	31
<b>Unit-7</b>	Spectacle Correction for Pressbyopia	37
<b>Unit-8</b>	Special Considerations	43
<b>Unit-9</b>	Focimetry and its Application in Dispensing Optics	49



## **STRUCTURE OF THE COURSE**

The course "Dispensing Optics" has been structured to make it as easy as possible for you to do the required work. Like a half credit course this course consists of nine units. One unit is study work of two week, thus the total study period will be of 18 weeks.

We have organized this course to enable you to acquire the skills of self learning. For each unit, an introduction is given to help you to develop an objective analyses of the major and sub-themes, discussed in the prescribed reading material. Beside this, objectives of each unit are very specifically laid down to facilitate in developing a clear logical approach. We have also given you Self-Assessment Exercises which are present in the reference text. Questions in the Self Assessment Exercise are not only meant to facilitate you in understanding the required readings but to provide you an opportunity to assess yourself. Since the course work of one unit includes studying the prescribed reading material and carrying out the self assessment questions, activities assignments and practicals, you are required to spend two weeks on each unit.

For this course "Fortnightly Tutorials" are arranged in the university's Selected Regional Study Centers. They provide you the facility of meeting with one another for discussion and mutual help & for group and individual discussion with fellows and tutors.

### **a) How to use Reading Material:**

As this is a distance education course, we have organized the required course work in the following manner to help you in evolving a self learning process in the absence of formal class room teaching.

- 1) A detailed course introduction
- 2) Introduction to each unit.
- 3) The major themes of the unit is listed along with readings. A list of suggested & prescribed reading is given at the end of each unit.
- 4) Self Assessment Exercise given in the reference text are not only meant to facilitate you in understanding but will also suggest a direction in which we expect you to think and analyze.

**b) How to Attend Tutorials**

Tentative Tutorial & Practical schedule is provided to you in your study packs. 70% attendance in the tutorial is compulsory in order to appear in the exam. Before attending the tutorial, you are required to prepare yourself by reading the Topics to be taught in the next tutorial carefully and mark the points which you cant understand yourself in order to discuss them with your tutor and your colleagues.

## **WELCOME FROM PROGRAMME COORDINATOR**

Dear students, you must be aware of the fact that unfortunately, most of the optical shops in our country are not run by professionally qualified people. You are going to be professionals InshaAllah. You will be prescribing and dispensing glasses to the community. Therefore, it is of utmost importance that you are well equipped with the knowledge and skills involved in performing the mentioned tasks. This study guide is an effort to facilitate your learning of what I would call the art of dispensing glasses. The aims and objectives given in each study unit were formulated in the workshop at Pakistan Institute of Community Ophthalmology that I have mentioned in the introduction of the study guide for "Instrument Optics" as well. Moreover, most of the prescribed reading has been written by a very experienced and qualified optician- Mr. Zubair Awan from UK. As Mr. Zubair is a modern practicing optician, he is well aware of the needs of the knowledge and skills expected of an optician of today. Therefore, I am sure that you would find it very useful in attaining the required standards. The prescribed reading is for those who seek knowledge wherever they can get it. The self- evaluation exercises given at the end of each unit will help you in further improving your understanding of the subject.

With this brief note, I wish you success in the career you have opted for.

**Programme-Co-Ordinator**

## **INTRODUCTION TO THE COURSE**

Dear students, you should realize that you are the member of a global team for the elimination of needless blindness and low vision. Provision of affordable and at the same time standard- quality glasses to the needy is one of the important strategies of the famous Global initiative- Vision 2020. You will be providing this service to your communities once qualified. This course is designed to help you serve this purpose. In this study guide, unit 1 is designed to provide details about role of dispensing in ophthalmology, its importance and management of an optical shop. Unit 2 will provide you detailed information about different types of lenses and materials used, their uses, advantages & disadvantages. While unit 3 will equip you to assess the needs of customers & their requirements. Unit 4 is meant to equip you with different frame measurements to ensure best possible spectacles. Unit 5 is about selection of different frames according to facial measurements of customers. Different problems and their solutions are discussed in unit 6. Unit 7 deals with Presbyopia and its management while unit 8 gives you special knowledge about fitting of spectacles in special cases. Focimetry is discussed in unit 9.

### **OBJECTIVE**

After studying this course, you should be able to:

1. Manage an Optical Shop
2. Assess User Needs
3. Prescribe Different Types of Glasses
4. Cope with Common Problems of the Users.

**Course Coordinator:**

# **UNIT NO 1**

## **INTRODUCTION TO DISPENSING OPTICS**



## **INTRODUCTION**

This unit will help you in understanding the concept of optical shop. You will realize the importance of optical dispensing in clinical ophthalmology. Prescription analysis is a very important element of dispensing and this unit will equip you with the knowledge and skills needed to analyze a prescription.

## **OBJECTIVE**

After studying this unit you should be able to:

1. Show the importance of dispensing optics in ophthalmology.
2. Explain what an optical shop is.
3. Manage an optical shop.
4. Analyze a prescription.

## **INDICATIVE CONTENTS**

- 1.1 The optical shop
- 1.2 Role of dispensing in Ophthalmology.
- 1.3 Managing inventory and record keeping.
- 1.4 Prescription analysis.
  - 1.4.1 Distance and near vision prescriptions
  - 1.4.2 Transposition
  - 1.4.3 The high prescription.

## **PRESCRIBED READINGS**

1. Zubair Awan. Manual on Optical dispensing Dispensing Page 6-22.
2. Harold A. stenin, Bernard J. slatt, Taymond M. stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition. P 241, 242

## **SUGGESTED READINGS**

1. Tyree Carr. Fundamentals of Practical Opticianary. Ophthalmic Medical Assisting. The Foundation of the American Academy of Ophthalmology, third edition, 1999, p 127
2. Duke-Elder's Practice of Refraction. The making and fitting of spectacles, Tenth edition. Page 199, 208
3. Clifford W. Brookes, Irvin M. Borish. Ordering and verification. System for Ophthalmic dispensing. Second edition. P 89-102

## **SELF ASSESSMENT QUESTIONS**

- Q1. How will you describe and manage an optical shop?
- Q2. Describe the importance of an optical shop?
- Q3. What skills are required to analyze an optical prescription?

## **UNIT NO 2**

### **LENSES FOR SPECTACLES**



## **INTRODUCTION**

Prescribing an appropriate glasses to a patient demands adequate knowledge of the different types of lenses, materials and forms available in the market. This unit tries to fulfill these demands.

## **OBJECTIVE**

After studying this unit you should be able to:

1. Have practical knowledge of different types of lens. Materials, their uses, advantages and disadvantages.
2. Learn different types of lens forms and their uses, advantages and disadvantages.
3. Identify additional benefits of spectacle lenses.

## **INDICATIVE CONTENTS**

- 2.1 Single vision lenses.
- 2.2 Basic lens materials.
- 2.3 Lens forms.
- 2.4 Photochromic lenses.
- 2.5 Additional benefits for spectacle lenses. (hard coating, tint on lenses, multi-anti-reflection coating)

## **PRESCRIBED READINGS**

1. Zubair Awan. Dispensing. Manual on Optical dispensing. Page 11-13
2. Zubair Awan. Dispensing style. Manual on Optical dispensing. Page 23-30
3. Harold A. Stein, Bernard J. Slatt, Raymond M. Stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition. Page 252-268

## **SUGGESTED READINGS**

1. Tyree Carr. Fundamentals of practical Opticianary. The Foundation of the American Academy of Ophthalmology, third edition, 1999, P 128-131.
2. Duke-Elder's Practice of Refraction. The making and fitting of spectacles, Tenth edition. Pages 199, 232.
3. MO. Jalie. Form and material of ophthalmic lenses. Ophthalmic lenses and dispensing P 27-37.00.

## **SELF ASSESSMENT QUESTIONS**

- Q1. Give a brief account of different lens material and their advantages.
- Q2. Describe different forms of lenses & their uses.
- Q3. How different forms of lenses can additionally benefit a Patient.?

## **UNIT NO 3**

### **ASSESSING USER NEEDS**



## **INTRODUCTION**

Any prescription can satisfy the individual needs of a patient only if his/her needs have been properly assessed before prescribing spectacles. This requires good knowledge and skills of how to assess the user's needs. This unit is going to address this important area of optical dispensing.

## **OBJECTIVE**

After studying this unit you should be able to:

- Assess the individual needs of customers

## **INDICATIVE CONTENTS**

**3.1** Assessing need.

## **PRESCRIBED READINGS**

1. Zubair Awan. Assessing needs. Manual on Optical dispensing. P 17.
2. Harold A. Stein, Bernard J. Slatt, Raymond M. Stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition. P 262-248

## **SUGGESTED READINGS**

1. Theodore P. Grosvenor. Subjective Refraction. Primary Care Optometry. Second Edition. P 262-264.
2. Duke-Elder's Practice of Refraction. Subjective verification of the refraction, and testing of muscle balance. Tenth Edition. P 181-183.

3. Tyree Carr. Optics and refractive states of the eye. Ophthalmic Medical Assisting. The Foundation of the American Academy of Ophthalmology, Third Edition, 1999, P54-55

## **SELF ASSESSMENT QUESTIONS**

- Q1. Describe the importance of assessing need of your client before prescribing spectacles.

## **UNIT NO 4**

### **MEASUREMENT FOR SPECTACLE FITTING**



## **INTRODUCTION**

In dispensing it is very important that the frame is well-fitted. The fitting of a frame depends on the initial selection of the frame. Though it sounds very simple, but in practice it is an art that requires good knowledge of the different types of users and the variety of frames available. This process need skillful hands as well. This unit will help you regarding this task.

## **OBJECTIVE**

After studying this unit you should be able to:

1. Measure IPD for distance and near vision prescriptions.
2. Measure BVD.
3. Make accurate measurements for blank size.
4. Achieve accurate centration of spectacle lenses before the eyes.

## **INDICATIVE CONTENTS**

- 4.1 IPD measurements for distance and near vision prescriptions
- 4.2 BVD measurements
- 4.3 Blank size
- 4.4 Centration

## **PRESCRIBED READINGS**

1. Zubair Awan. Assessing needs. Manual on Optical dispensing. P 18-20, 68.
2. Harold A. stein, Bernard J. Slatt, Raymond M. Stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition. P 249-252, 268

## **SUGGESTED READINGS**

1. MO Jaile. Lens centration. Ophthalmic lenses and dispensing. P 38-51.
2. Clifford W. Brookes, Irvin M. Borish. Measuring the interpupillary distance. System for ophthalmic dispensing. Second Edition. P 23-40.
3. Clifford W. Brookes, Irvin M. Borish. Reference point placement, multifocal height, and Blank size. System for ophthalmic dispensing. Second Edition. P 61-88.

## **SELF ASSESSMENT QUESTIONS**

- Q1. Describe the importance of measuring IPD.
- Q2. How will you measure IPD? Describe the method.
- Q3. In what types of prescriptions measurement of BVD is important?
- Q4. How will you measure BVD?
- Q5. Why centration of lenses is important?
- Q6. How will you measure Blank size?

## **UNIT NO 5**

### **FRAMES**



## **INTRODUCTION**

If you want to satisfy the individual needs of your client, you have to help her/him in choosing the most appropriate type of spectacle frame for him/her. To achieve this, you require to have the knowledge of basic facial shapes and the different types of frames available. This unit will provide necessary knowledge required of you to acquire competency in frame selection so that whatever you prescribe, suits your client.

## **OBJECTIVE**

After studying this unit you should be able to:

1. Select appropriate frame for different types of clients.
2. Achieve proper fitting of the frame.

## **INDICATIVE CONTENTS**

- 5.1 Frame selection
- 5.2 Frame choice and fitting
- 5.3 Check list for a well-fitted frame

## **PRESCRIBED READINGS**

1. Zubair Awan. Frames. Manual on Optical dispensing. P 22.
2. Harold A. Stein, Bernard J. Slate, Raymond M. Stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition, P 242-246

## **SUGGESTED READINGS**

1. Clifford W. Brookes, Irvin M. Borish. Frame types and parts. System for ophthalmic dispensing, Second Edition. P 1-13
2. Clifford W. Brookes, Irvin M. Broish. Frame measurements and markings. System for ophthalmic dispensing. Second Edition. P 14-20.
3. Clifford W. Brookes. Irvin M. Borish. Frame selection. System for ophthalmic dispensing. Second Edition. P 41-60.
4. Clifford W. Brookes. Irvin M. Borish. Quick guide to fitting. System for ophthalmic dispensing. Second Edition. P xivs.

## **SELF-ASSESSMENT QUESTIONS**

- Q1. How Frame selection can help your customer?
- Q2. How facial shapes can effect frame selection?

## **UNIT NO 6**

### **COLLECTIONS, COMMON PROBLEMS WITH SPECTACLES AND THEIR REMEDY**



## **INTRODUCTION**

You must have heard people saying, “My glasses do not stay in place”, “My frame sits too high”, “My frame touches the eyebrows” etc. these are common problems that the users face. Little, but, skillful interventions can solve such problems. This unit will enable you to successfully deal with the common problems associated with spectacle use .

## **OBJECTIVE**

After studying this unit you should be able to:

1. Ensure that the customer chooses the right frame.
2. Check that the spectacle perfectly suits the customer in all aspects.
3. Educate user on spectacle care.
4. Solve common problems associated with spectacle use and their solutions.

## **INDICATIVE CONTENTS**

- 6.1 Connections and common problems with spectacles and their remedy.
- 6.2 Checklist of things to be remembered before the customer selects his/her spectacles.
- 6.3 Checking the fit and making any necessary adjustments
- 6.4 Cleaning and after care advice
- 6.5 Common problems and remedies

### **PRESCRIBED READINGS**

1. Zubair Awan. Frames. Manual on Optical dispensing. P 32-33.
2. Harold A. Stein, Bernard J. Slate, Raymond M. Stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition, P 242-246
3. Harold A. Stein, Bernard J. Slate, Raymond M. Stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition. P242.

### **SUGGESTED READINGS**

1. Clifford W. Brookes, Irvin M. Borish. Frame types and parts. System for ophthalmic dispensing, Second Edition. P 1-13
2. Clifford W. Brookes, Irvin M. Borish. Frame measurements and markings. System for ophthalmic dispensing. Second Edition. P 14-20.
3. Clifford W. Brookes. Irvin M. Borish. Frame selection. System for ophthalmic dispensing. Second Edition. P 41-60.
4. Clifford W. Brookes. Irvin M. Borish. Quick guide to fitting. System for ophthalmic dispensing. Second Edition. P xivs.

## **SELF-ASSESSMENT QUESTIONS**

- Q1. Give the importance of frame selection?
- Q2. What instruction you will give to customer about spectacle care?
- Q3. Give a brief account of problems associated with spectacles and their solution.

## **UNIT NO 7**

### **SPECTACLE CORRECTION FOR PRESSBYOPIA**



## **INTRODUCTION**

Pressbyopia is an age related phenomena that needs correction when a person can't perform his/her day to day activities as a result. It is one of the most common eye problems in the aged. Now a days, we have many choices in the type of spectacles for pressbyopia. It is therefore important for you to know how to dispense glasses for pressbyopia. This inclusion of a separate unit is definitely going to help you in this regard.

## **OBJECTIVE**

After studying this unit you should be able to:

1. Assess the needs of the pressbyopes
2. Have the knowledge about the use of bifocals, trifocals and varifocals, their advantages and disadvantages.
3. Educate the users about the use and care of their pressbyopic glasses.

## **INDICATIVE CONTENTS**

- 7.1 Assessing the needs of the Pressbyopes.
- 7.2 Bifocals, trifocals and varifocals.
- 7.3 Instructions to the user.

## **PRESCRIBED READINGS**

1. Zubair Awan. Frames. Manual on Optical dispensing. P 34-51.
2. Harold A. Stein, Bernard J. Slate, Raymond M. Stein. Facts about glasses. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition, P 261-227.

## **SUGGESTED READINGS**

1. Clifford W. Brookes, Irvin M. Borish. Reference Placement, Multifocal Height and Blank Size. System for ophthalmic dispensing. Second Edition. P 69-87.
2. MO Jali. Bifocals. Ophthalmic lenses and dispensing. P 120-143.
3. MO Jalie. Bifocals. Ophthalmic lenses and diepensing. P 144-149

## **SELF-ASSESSMENT QUESTIONS**

- Q1. Analyze the basic requirement of presbyope.
- Q2. Compare the advantages and disadvantages of Bifocals, Trifocals and Multifocals.
- Q3. What instructions will you give to presbyope about the use of their spectacles?

**UNIT NO 8**

**SPECIAL CONSIDERATIONS**



## **INTRODUCTION**

So far, you have been able to attain knowledge and skills to entertain the routine cases. Now you need to know how to dispense for special cases e.g; people with high refractive errors. You have to understand the use of prisms in dispensing as well. The knowledge about other types of spectacle is also of great value. While dispensing, the weight and the cost of the frame should suit the user. This unit will guide you about all the things that have been mentioned.

## **OBJECTIVE**

After studying this unit you should be able to:

1. Identify the materials and frame types for high index lenses.
2. Dispense high index lenses.
3. To have acquaintance with the merits of Aspheric lenses and dispense those.
4. Explain uses of prism and dispense prisms. Dispense frames of appropriate weight and cost that suits the user.
5. Have working knowledge of other types of spectacles.

## **INDICATIVE CONTENTS**

- 8.1 High Index lenses
  - 8.1.1 Materials for high index lenses
  - 8.1.2 Frame choices
  - 8.1.3 Edge thickness comparison
  - 8.1.4 Dispensing of high index lenses
- 8.2 Aspheric lenses, their advantages and dispensing
- 8.3 Prisms and dispensing
- 8.4 Base curves and their importance
- 8.5 Weight of frame
- 8.6 Cost of frame
- 8.7 Other types of spectacles

### **PRESCRIBED READINGS**

1. Zubair Awan. Frames. Manual on Optical dispensing. P 53-62.

### **SUGGESTED READINGS**

1. Clifford W. Brookes, Irvin M. Borish. Frame selection. System for ophthalmic dispensing. Second Edition. P 51-55.
2. MO Jali. Bifocals. Ophthalmic lenses and dispensing. System for ophthalmic dispensing. Second Edition. P 120-143.
3. MO Jalie. Special lenses. Ophthalmic lenses and dispensing. P 165-167.
4. MO Jalie. Special lenses. Ophthalmic lenses and dispensing. P 180-187.

## **SELF-ASSESSMENT QUESTIONS**

- Q1. What are high index lenses? Describe their uses.
- Q2. Define prisms and their uses in ophthalmology.
- Q3. Give advantages of Aspheric lenses.

## **UNIT NO 9**

### **FOCIMETRY AND ITS APPLICATION IN DISPENSING OPTICS**



## **INTRODUCTION**

Measuring the power of the spectacle lenses is a very useful tool in dispensing. It is done with a lensmeter/ focimeter. This measurement verifies the power of the dispensed lens against the prescription. It is not uncommon for people to loose their prescription, in such case, lensmetry is the only way to find out the prescription. This unit is therefore designed to address the knowledge and skills relating to lensmetry.

## **OBJECTIVE**

After studying this unit you should be able to:

1. Have the working knowledge relating to focimeter.
2. Measure the power of single vision, spherical and cylindrical lenses.
3. Explain how to compensate for change in vertex distance.

## **INDICATIVE CONTENTS**

- 9.1 The focimeter
- 9.2 Single vision lenses' focimetry.
- 9.3 Spheres and cylinders
- 9.4 Compensation for change in vertex distance

## **PRESCRIBED READINGS**

1. Zubair Awan. Frames. Manual on Optical dispensing. P 63-68.
2. Harold A. Stein, Bernard J. slatt, Raymond M. Stein. Preliminary examination. The Ophthalmic Assistant, A Guide for Ophthalmic Medical Personnel. Seventh Edition. P 139-146

## **SUGGESTED READINGS**

1. Clifford W. Brookes, Irvin M. Borish. Ordering and verification. System for ophthalmic dispensing. Second Edition. P 89-102.
2. MO Jalie. Introduction to the theory of ophthalmic lenses. Ophthalmic lenses and dispensing. P22-26

## SELF-ASSESSMENT QUESTIONS

- Q1. Give uses of Focimeter
- Q2. How will you measure the power of a spherical lens?
- Q3. In what types of spectacles,, BVD comes into consideration?