File Ref No.81819/CDC--D-SO/2014/Admn

UNIVERSITY OF CALICUT

Abstract

CDC - Additional affiliation to new UGC aided B.Voc programmes for the academic year 2018-19 at various colleges in Thrissur, Malappuram & Wayanad districts under the University of Calicut - sanctioned - orders issued.

CDC-D

U.O.No. 957/2019/Admn Dated, Calicut University.P.O, 22.01.2019

Read:-1. Various letters received from the University Grants Commission.

2. Applications for granting new B.Voc programmes, from the Principals of various colleges concerned.

3. Letter No. 81819/CDC--D-SO/2014/Admn dated 04.10.2018, 15.10.2018 & 24.10.2018.

4. Letter No. GS3-3559/2018 dated 31.10.2018 from the Principal Secretary to the Governor.

5. Reports received from Distrcit Level Inspection Committees concerned.

6. Letter No. 81819/CDC--D-SO/2014/Admn dated 09.11.2018.

7. G.O.(Ms)No.318/2018/HEDN dated 31/12/2018.

8. Applications for provisional affiliation to new B.Voc programmes, from the Principals of the colleges concerned.

ORDER

The University Grants Commission vide paper read as first has informed the granting of approval for the proposal submitted by various colleges, for introducing new B.Voc programmes under National Skill Qualification Framework (NSQF) from the academic year 2018-19, in compliance with the terms and conditions laid down in the guidelines for providing Skill-based Education under National Skill Qualification Framework (NSQF).

2. Based on the approval from the UGC, the Principals of concerned colleges, vide the papere read as second, have submitted applications in the statutory form and requested to issue necessary orders for granting provisional affiliation to these programmes from the 2018-19 academic year. The Principals of Farook College, Kozhikode and WMO Arts & Science College, Muttil, Wayanad have informed their unwillingness to start the programme during the academic year 2018-19.

3. The belated submission of applications require the issuance of a notification, by the Hon'ble Chancellor, under the provisions in Chapter XVIII of the CU Act 1975, sub section (2) granting extension of time upto the date proposed by the University for consideration of the application for starting the programme. As per papers read as third above, the Secretary to the Chancellor was requested to consider the belated applications and to issue a notification granting extension of time for consideration of the applications for affiliation of the new programmes for the academic year 2018-19.

4. Vide reference fourth, the Hon'ble Chancellor is pleased to issue a notification, extending the period up to 15.11.2018, within which the Syndicate shall consider the application for granting additional affiliation to the new programmes at these colleges for the academic year 2018-19.

5. The DLIC for the districts Thrissur, Malappuram & Wayanad have conducted inspection at these colleges and recommended the UGC aided BVoc programmes with an intake of 50 students each in

PRINCIPAL
M.E.S KEVEEYEM COLLEGE
VALANCHERY, PIN: 676 552
MALAPPURAM

M.E.S. Keveeyam College, Valanchery

UNIVERSITY OF CALICUT

B. Voc. Degree Programme in

RETAIL MANAGEMENT

Under the Faculty of

Commerce and Management Studies

SCHEME AND SYLLABUS

For General and Skill Papers

2018 ADMISSION ONWARDS

BOARD OF STUDIES IN COMMERCE AND MANAGEMENT STUDIES (UG)

CALICUT UNUIVERSITY

THENHIPALAM, CALICUT UNUIVERSITY P.O

KERALA 673635

PREAMBLE

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF.TheB.Voc.programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles and their NOSs alongwith broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

The B. Voc. Programme is designed to bridge the potential skill gap identified. The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components. The general education component provides emphasis to Communication skill, Presentation skill, Health and Safety, Industrial Psychology, Environmental awareness, Entrepreneurship development and other relevant subjects in the field. General Education Components should not exceed 40% of the curriculum. Skill Development Component should match the skill gap identified at least 50% of Skill Development Component should be allotted to practical and can grow up to 60% based on the nature of the course. The practical component can be carried out in the college and/or the industry partner premises.

Retail management pertains to the task of managing supermarkets and hypermarkets in strict business terms. In India, the retail industry has seen a great upsurge in the past decade. Retail management is the right or rather the best career for those who feel an interest towards commodities, sales markets, market segments, diversification of businesses, advertising and campaigning, and marketing research. There are a lot of opportunities in the retail sector inside and outside of our country.

The units of the syllabus are well defined. The number of contact hours required for each unit is also given. A list of reference books is provided at the end of each course

AIMS

This curriculum has been prepared with the objective of giving sound knowledge regarding retail management to undergraduate students. The goal of the syllabus is to equip students with the potential to contribute to academic and industrial environments. This curriculum will expose students to various fields of retail management and develop interest in related disciplines.

BROAD OBJECTIVE

The B. Voc courses are designed with the following objectives,

- To provide judicious mix of skills relating to a profession and appropriate content of General Education.
- To ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of theprogramme.
- To understand basic facts and concepts in retail management
- To develop the ability for applying the principles of commerce in retail management
- To develop skills to receive and store goods in retail operations
- To deliver products to customers
- To create a positive image of self & organisation in the customers mind
- To maintain health and safety in retrial stores
- To process cash and credit transactions in retail stores
- To work effectively in a Retail team
- To help keep the store secure
- To provide specialist support to customers facilitating purchases
- To be exposed to the different processes used in industries and theirapplications.
- To provide flexibility to the students by means of pre-defined entry and multiple exit points.
- To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.

SEMESTER

A term consisting of 90 working days including examination days distributed over a minimum of 18 weeks of 5 working days consisting of six hours. Total credits in a semester: 30(equivalent to 450 hours).

ELIGIBILITY AND INDEX CALCULATION

The admission to B Voc programme will be as per the rules and regulations laid out by the University of Calicut for UG admissions. Candidates who have passed pre degree or plus two course(HSE/VHSE/Similar) in any stream with not less than 45% marks in aggregate shall be eligible to apply for admission to the B.Voc Retail Management programme. (No age limit)

INDEX MARK CALCULATION

Plus two marks (HSE. out of 1200.Other streams should be converted to this appropriately).Additional marks are as follows:

- +2 /VHSE/CBSE/Diploma/Certificate course level- studied commerce related subjects – 10 marks.
- NSS-10
- NCC- as per the A,B,C certificate(5,10,15)

RESERVATION/QUOTA

A maximum of 50 students can be admitted to one B. Voc programme. The students can be admitted only to the first semester (except for diploma holders). No students are admitted directly to the Third and Fifth semester in any circumstance except for diploma holders. Diploma holders may be permitted to third semester directly as mentioned above. The reservation rules for Government/Aided Colleges are as same as that of the regular UG programmes conducted in colleges affiliated to this university.

LEVELS OF AWARDS

B. Voc is programme with multiple exits. Following table shows the various certificates and their duration.

Awards	Duration
Diploma	2semester
Advanced diploma	4 Semester
B Voc Degree	6 Semester

ASSESSMENT OF STUDENTS

Assessment of students for each subject will be done by internal continuous assessment and Semester-End examinations. This dual mode assessment will be applicable to both Theory and Practical courses except for internship and project. Total marks in theory course reflect 80 marks external and 20 marks internal assessments. The mark division for practical courses is 20 marks internal and 80 marks external. For internship and project, there is no internal assessment

Sl No	Courses	Internal	External
1	Theory	20	80
2.	Practical	20	80
3.	Internship/ Project	0	100

INTERNALEVALUATION

20% of the total marks in each course are for internal evaluation. The colleges shall send only the marks obtained for internal examination to the university

The mark distribution to award internal continuous assessment marks for **theory** subject should be as follows:

Assessment	**Mark**
Test papers (minimum two, best two out of three is preferred)	10
Assignments (minimum two) such as home work, problem solving, group discussions, quiz, literature survey, seminar, term-project, software exercises, etc.	5
Regularity in the class	5
Total	**20**

The mark distribution to award internal continuous assessment marks for **practical** subject should be as follows:

Assessment	**Mark**
Evaluation in the lab and Rough Record	10
End-semester Test	4
Viva	1
Regularity	5
Total	**20**

Note:

No candidate will be permitted to attend the end-semester practical examination unless he/she produces certified record of the laboratory. Full credit for regularity in the class can be given only if the candidate has secured minimum 90% attendance in the subject. Attendance evaluation for each course is as follows

% of attendance	Marks
Above 90%	5
85-89%	4
80-84%	3
76-79%	2
75%	1

PATTERN OF QUESTIONS FOR SEMESTER-END EXAMINATIONS

The question papers of Semester-End examinations of theory subjects shall be able to perform achievement testing of the students in an effective manner. Duration of Semester-End examinations will be 3 hours. The pattern of questions for theory subjects shall be as follows:

For Theory

Section	Total No.of questions	No.of question to be answered	Marks for each question	Total marks
A:Very short/Objective type	10	10	1	10
B:Shortanswer type	12	8	2	16
C: Short essay type	9	6	4	24
D: Essay type	4	2	15	30
TOTAL				80

For Practical:

Marks Distribution	Total marks
Theory/ Algorithm/Flow diagram	20
Implementation	30
Result/Output	10
Record	10
Viva	10
Total	**80**

Mark distribution for internship:

Distribution	Marks
Content and relevance or Dissertation	60
Viva	20
Presentation	20

Grading- Indirect Grading System

Indirect Grading System based on a 7 point scale is used to evaluate the performance of students.

Marks scored	Grade	Remarks
90 and Above	A+	Outstanding
80 to 89	A	Excellent
70 to 79	B	Very Good
60 to 69	C	Good
50 to 59	D	Satisfactory
40 to 49	E	Adequate
Below 40	F	Failure

CONTENTS

COURSE STRUCTURE

Credit Distribution

Semester	Common Course		General Component	Skill Component	Total
	English	Additional Language			
Semester I	4	4	4	5+4+4+5=18	30
Semester II	4	4	4	4+5+4+5=18	30
Semester III	4	-	4+4=8	4+5+5+4=18	30
Semester IV	4	-	4+4=8	4+4+5+5=18	30
Semester V	-	-	4+4=8	4+4+4+5+5=22	30
Semester VI	-	-	-	30	30
Total	**16**	**8**	**32**	**124**	**180**

SEMESTER I

C.No.	Paper Code	Paper Title	GEN/ SKILL	Credit	Marks			Hours per Week		
					Internal	External	Total	Theory	Practical	Total
1.1	GEC1EG01	Transactions Essential English Language Skills A01	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
1.2	GEC1ML02	Malayalam –BashayumSahithyavum-I MAL1A01(2)	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
	GEC1AR02	Communication Skills in Arabic ARB1A07(1)								
	GEC1HD02	Prose and One Act Plays A07								
1.3	GEC1EC03	E-Commerce and General Informatics	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
1.4	SDC1RM01	Introduction to Retail Store Operations- Health Safety, Security, Team & Organizational Dynamics	**SKILL**	**5**	**20**	**80**	**100**	**5**		**5**
1.5	SDC1RM02	Basic Business Communication Skills	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
1.6	SDC1RM03(P)	Lab on Business Communication Skills(P)	**SKILL**	**4**	**20**	**80**	**100**		**4**	**4**
1.7	SDC1RM04(P)	Lab on Retail Selling Skills- I(P)	**SKILL**	**5**	**20**	**80**	**100**		**5**	**5**
Total				**30**	**140**	**560**	**700**	**21**	**9**	**30**

Qualifications Pack – RAS/Q0101 Retail Store Operations Assistant

SEMESTER II

C. No.	Paper Code	Paper Title	GEN/ SKILL	Credit	Marks			Hours per Week		
					Internal	External	Total	Theory	Practical	Total
2.1	GEC2EG04	Ways with Words A02	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
2.2	GEC2ML05	Malayalam –BashayumSahithyavum-II MAL2A02(2)	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
	GEC2AR05	Literature in Arabic ARB2A08(2)								
	GEC2HD05	Poetry and Short Stories A09								
2.3	GEC2FA06	Financial AccountingBC2B02	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
2.4	SDC2RM05	Retail Logistics Management	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
2.5	SDC2RM06	Retail Shopper Behavior	**SKILL**	**5**	**20**	**80**	**100**	**4**	**1**	**5**
2.6	SDC2RM07(P)	Lab on Retail Selling Skills II (P)	**SKILL**	**4**	**20**	**80**	**100**		**4**	**4**
2.7	SDC2RM08(Pr)	Internship/Project (Pr)	**SKILL**	**5**		**100**	**100**		**5**	**5**
Total				**30**	**140**	**560**	**700**	**20**	**10**	**30**

Qualifications Pack – RAS/Q0102 Retail Cashier

SEMESTER III

C. No.	Paper Code	Paper Title	GEN/ SKILL	Credit	Marks			Hours per Week		
					Internal	External	Total	Theory	Practical	Total
3.1	GEC3EG07	Writing for Academics and professional Success A03	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
3.2	GEC3PS08	Personality and Soft Skills Development	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
3.3	GEC3HR09	Human Resources Management BC3C03	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
3.4	SDC3RM09	Retail Stores & Operations Management	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
3.5	SDC3RM10	Store Display and Visual Merchandising	**SKILL**	**5**	**20**	**80**	**100**	**4**	**1**	**5**
3.6	SDC3RM11(P)	Computerised Accounting (P)	**SKILL**	**5**	**20**	**80**	**100**		**5**	**5**
3.7	SDC3RM12(P)	Lab on Store Display and Customer Service(P)	**SKILL**	**4**	**20**	**80**	**100**		**4**	**4**
Total				**30**	**140**	**560**	**700**	**20**	**10**	**30**

Qualifications Pack – RAS/Q0103 Retail Trainee Associate

SEMESTER IV

C. No.	Paper Code	Paper Title	GEN/ SKILL	Credit	Marks			Hours per Week		
					Internal	External	Total	Theory	Practical	Total
4.1	GEC4EG10	Zeitgeist: Readings on Contemporary Culture A04	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
4.2	GEC4ED11	Entrepreneurship DevelopmentBC4A13	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
4.3	GEC4QT12	Quantitative Techniques for Business BC4C04	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
4.4	SDC4RM13	Elements of Salesmanship	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
4.5	SDC4RM14	Retail Advertising & Sales Promotion	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
4.6	SDC4RM15(P)	Computer Practical -I (MS Office) (P)	**SKILL**	**5**	**20**	**80**	**100**		**5**	**5**
4.7	SDC4RM16(Pr)	Internship/Project (Pr)	**SKILL**	**5**		**100**	**100**		**5**	**5**
Total				**30**	**140**	**560**	**700**	**20**	**10**	**30**

Qualifications Pack – RAS/Q0104Retail Sales Associate

SEMESTER V

C. No.	Paper Code	Paper Title	GEN/ SKILL	Credit	Marks			Hours per Week		
					Internal	External	Total	Theory	Practical	Total
5.1	GEC5EV13	Conference and Event Management	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
5.2	GEC5MM14	Mall Management	**GEN**	**4**	**20**	**80**	**100**	**4**		**4**
5.3	SDC5RM17	Retail Planning	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
5.4	SDC5RM18	Retail Targets & Locations	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
5.5	SDC5RM19	Retail Distribution Management, Stores Layout And Design	**SKILL**	**4**	**20**	**80**	**100**	**4**		**4**
5.6	SDC5RM20(P)	Computer Practical-II (MS Office) (P)	**SKILL**	**5**	**20**	**80**	**100**		**5**	**5**
5.7	SDC5RM21(P)	Lab on Advertisement and Sales Promotion(P)	**SKILL**	**5**	**20**	**80**	**100**		**5**	**5**
Total				**30**	**140**	**560**	**700**	**20**	**10**	**30**

Qualifications Pack – RAS/Q0202 Business Builder/Retailer

SEMESTER VI

C. No.	Paper Code	Paper Title	GEN/ SKILL	Credit	Marks			Hours per Week		
					Internal	External	Total	Theory	Practical	Total
6.1	SDC6RM22	Internship & Project (900 Hrs.)	**GEN**	**30**		**700**	**700**		**900**	**4**
Total				**30**			**700**		**900**	**30**

Qualifications Pack – RAS/Q0107 Retail Store Manager

SEMESTER I

1.3: E-COMMERCE AND GENERAL INFORMATICS- GEC1EC03

Total Hours: 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Objectives:

- To understand the importance of E-commerce and its applications in the business management
- To familiarize the students with the concepts, models, strategies of E- commerce, Electronic Payment Systems and E-Commerce Security.

Module 1

Overview of Electronic Commerce- Introduction to E-commerce Concepts, features and functions Operation of e-commerce Infrastructure for Ecommerce Application of E Commerce indirect Marketing and Selling, Value Chain Integration, Supply Chain Management, Corporate Purchasing, Financial and Information Services**20 Hours**

Module 2

E-Commerce Models and Strategies -Types of E-commerce: B2B, B2C, C2C C2B- Business Models for E-Commerce- Brokerage Model, Aggregator Model, Info-mediary model, Community Model, Value chain model, Manufacturer model, Advertising Model, Subscription model.

10 Hours

Module 3

E-Commerce Strategies: Electronic Data Interchange Mobile Commerce and Web Commerce-Introduction to ERP-Components.**10 Hours**

Module 4

Electronic Payment Systems -Overview of Electronic Payment Systems, Cybercash(Customer to Merchant Payments, Peer to Peer Payments, Security).Smart Card (Card Types, Closed or Open Security, Privacy, Card Costs, Non Card Costs), Electronic Banking, Electronic Fund Transfers.

10 Hours

Module 5

E-Commerce Security-Introduction to Security Passwords Viruses Firewalls –Encryption (PGP, SHTTP, SSL) - digital signature digital certificate - other security measures

10 Hours

SUGGESTED READINGS:

1. E-commerce and General Informatics, Antony Thomas, Pratibha Publications
2. E-Commerce: An Indian Perspective, P.T.Joseph, S.J., PHI.
3. Business on the net: An Introduction to what and how of e-commerce: Agarwala andLal, Macmillan India Ltd.

1.4: INTRODUCTION TO RETAIL STORE OPERATIONS- HEALTH SAFETY, SECURITY, TEAM &ORGANIZATIONAL DYNAMICS-SDC1RM01

Objectives:

- To familiarize the students with the concept of retail store and its operations
- To identify and developing effective work habits, health, safety and security and risks and their type and organizational dynamics, retail talents of the students.

Total Hours: 75 Hours per week: 5 Credits: 5

Internal: 20, External: 80

Module 1

Introduction to Retail and Retail Store Operations: Overview of Retail Industry, Types of Retail Formats and Store Processes**5 Hours**

Module 2

Process Credit Applications for Purchases: Overviewand Need of credit facility, Characteristicsand conditions of credit facility, Legal and Company Criteria for providing credit company processes for credit checks and authorization, Prompt solutions to problems in processing credit application forms**20 Hours**

Module 3

Team and Organizational Dynamics: Job responsibilities of a sales associate, Skills of competent sales associate, work effectively in your team, supporting the team in workingeffectivelycommunication etiquette, Employee'sresponsibilitiestoward team, developingeffective work habits, work effectively in yourorganization, working in an organization across team,demonstrating problem solving skills, Evaluating the progress oforganizationalcoordination andhealth and safety agreement**20 Hours**

Module 4

Security Risks and their types: Help keep the store secure, role,authority,responsibility ofemployees in handlingsecurity risks, policies andprocedures of an organizationfor handlingsecurity risks, security risk reporting, following companysecurity policyand procedures

15 Hours

Module 5

Health, Safety and Security: Maintain health and safety, plan andprocedures,reporting health and safetyconcerns, companypolicy toward health and safety, first aid and medicalemergency plan, following emergencyand evacuationplan, makingwork environment safe.**15 Hours**

SUGGESTED READINGS:

1. SwapanaPradhan- Retailing Management
2. George H, Lucas Jr., Robert P. Bush, Larry G Greshan- Retailing
3. A. J. Lamba- The Art of Retailing
4. Barry Berman, Joel R Evans- Retail Management; A Strategic Approach

1.5: BASIC BUSINESS COMMUNICATION SKILLS -SDC1RM02

Objectives:

- To develop necessary skills in verbal and non verbal communication
- To equip the students effectively to acquire required skills to manage business communication as also to use electronic media for business communication.

Total Hours: 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Communication-Need-Process-Types-Oral-written-Verbal-Nonverbal-Internal, External-

10 Hours

Module 2

Non-verbal communication-Body language-Kinesics, Proxemics-Para language-Channels-Barriers-Principles of effective communication

10 Hours

Module 3

Job application letters-Resume-CV-Reference and recommendation letters- Employment letters-Online application-Soft skill

10 Hours

Module 4

Business letters-Parts and layout of business letters-Business enquiry letter offers and quotation-Orders and execution-grievances and redressals. Sales letters-Follow-up letters Circular letters-Status enquiry-Collection letters-Preparation of partnership deed-power of attorney.

20 Hours

Module 5

Impact of IT on communication-Role of computers-Internet-E-mail-Telephone voice mail-SMS- Video conferencing- Teleconferencing.

10 Hours

SUGGESTED READINGS:

1. Antony Thomas, Business Communication and MIS, Pratibha Publications
2. Bhatia R.C, Business Communication.
3. SaliniAgarwal Essential communication skill
4. Reddy P.N, and Apopannia, Essentials of Business Communication.
5. Sharma R.C, KRISHNA Mohan, Business Communication and Report writing.
6. Leod, M.C., Management Information System.
7. Jerome Reuter-Management Information system.

1.6 LAB ON BUSINESS COMMUNICATION SKILLS: PRACTICAL - SDC1RM03 (P)

Objective: The objective of this paper is to help students to acquire basic knowledge of the business communication and professional skills to impart skills for dealing with various kinds of business communications.

Total Hours: 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Use of Non-verbal communication – Body language-Kinesics, Proxemics-Para language

Activities: self-introduction& replies to General Questions. Verbal (Dramatic) performance (duration-1 minute) extemporespeech.GroupDiscussions. Mock Press Conference (Mock Interview with one student as a famous personality, being interviewed by the whole class as members of the Press) .Group singing/Cookery Demonstration /Sports Commentary. Mock TV news reading.**15 Hours**

Module 2

Preparation of Job application letters-Resume-CV-Reference and recommendation letters-Employment letters **5 Hours**

Module 3

Preparation of Business letters- Business enquiry letters-offers and quotation- Orders and execution-grievances and redressals. Sales letters-Follow-up letters- Circular letters-Status enquiry-Collection letter**15 Hours**

Module 4

Impact of IT on communication-

Prepare an e-mail to your target customers. Role-play on handling customer's complaint over phone. Prepare SMS regarding festival discount sales at your retail shop. **Telephone skills:** Prepare to make a telephone call- Receiving calls-Taking and leaving messages- Asking for and giving repetition - Selling up appointments-Changing appointments- Ending call- Situational dialogs. **Meeting:** What makes a good meeting –Chairing a meeting – Starting and asking for opening- asking for giving clarifications – ending the meeting.**15 Hours**

Module 5

Practice in Free and Fluent thinking and speech

Assignments:

1. A taped interview (audio or CD) with an interesting personality (duration-15 minutes) The written script to be submitted
2. A Mock Viva to be organized among the students themselves with the teacher as the facilitator, (They should be encouraged to grade each other during a viva session in which two or three of them will interview one student and then proceed in the reverse order.) This will definitely increase their confidence to face both the Model and the Final Viva.

   The student has to keep all the reports and records of all the modules in one single file

10 Hours

1.7: LAB ON RETAIL SELLING SKILLS -SDC1RM04 (P)

Objectives:

- **To develop confidence, energy and focus, the students need to become a successful retail sales professional**
- **To identify essential ingredients to meet successful sales and handle different retail sales situations**

Total Hours : 75 **Hours per week: 5** **Credit 5**

Internal: 20, External: 80

Module 1

Practical Training in Lab: Basic Hygiene

• Tips on Basic Hygiene • Basic Health Care

• How Hygiene affects Customers • Cleanliness of mind & Body

15 Hours

Module 2
Practical Training in Lab: Basic Communication Skills

• Use of Words • Use of Signs

• Use of Hands •Communicating First Time with the Customers

15 Hours

Module 3
Practical Training in Lab: Basic Grooming

• Dress Code • Decent Dressing

• Hair Styling • Maintaining Neat & Pleasant Look

15 Hours

Module 4
Practical Training in Lab: Manners &Etiquettes

• Body Language • Face & Body Expressions

• Self Presentation • Voice Modulations

15 Hours

Module 5
Practical Training in Lab: Developing Relationships

• Memory Skills • Feedback from Customers

• Giving Personal Attention

15 Hours

SEMESTER II

2.3: FINANCIAL ACCOUNTING (BC2BO2)–GEC2FA06

Objectives:

- **To enable the students to acquire knowledge of preparing financial statements**
- **To enable the students to acquire knowledge about accounting standards and to understand corporate accounting methods**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Preparation of Financial Statements of Non Corporate Entities not covered by IFRS

Convergence: Preparation of Financial Statements of sole trader - Single Entry: Meaning Methods of profit determination - Capital comparison method -Conversion method – Depreciation accounting -**10 Hours**

Module 2

Accounts of Corporate Entities not Covered by IFRS Convergence: Issue of shares anddebentures, Forfeiture of shares (An overview) - Preparation of financial statements of Joint stock companies**10 Hours**

Module 3

Accounting For Banking Companies: Bank accounts - Concept of Non-Performing Assets (NPA)-Preparation of Profit and Loss Account - Asset classification - Preparation of Balance Sheet.**10 Hours**

Module 4

Accounting For Insurance Companies: Insurance Accounts – types of insurance accounts-Final accounts of life Insurance - Profit determination of life insurance

10 Hours

Module 5

Accounting Standards for Financial Reporting: Objectives and uses of financial statements forusers - Role/objectives of accounting standards - Development of accounting standards in India -Requirements of international accounting standards -International organizations engaged in accounting harmonization - IASB – FASB- Role of IASB in developing IFRS - IFRS adoption or convergence in India -Implementation plan in India - Indian AS - Differences between Indian AS andIFRS -Conceptual framework - Definition of financial elements - Principles of recognition, measurements, presentation and disclosure.

20 Hours

SUGGESTED READINGS:

1. Gupta R.L., Advanced Accounting Vol. I, S. Chand & Sons, New Delhi
2. Grewal T.S. and M.C. Shukla, Advanced Accounting Vol. I, S. Chand & Sons, New Delhi
3. Monga, J.R., Financial Accounting, Margin Paper Bank, New Delhi
4. Maheshwari S.N., Advanced Accounting Vol. I, Vikas Publications

2.4: RETAIL LOGISTICS MANAGEMENT - SDC2RM05

Objectives:

- **To acquaint the students with the basic ideas of logistics management**
- **To develop an understanding of the role of logistics in a market oriented society.**
- **To examine the major functions of logistics and role of IT in logistics**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Logistics Framework: Concept, Objective and Scope, Transportation, Warehousing, Inventory Management, Packing and Unitization, Control and Communication.

10 Hours

Module 2

Role of Information Technology in Logistics, Logistics Service Firms and Third Party Logistics

10 Hours

Module 3

Retail Logistics Network Design for Global Operations: Global Logistics Network Configuration, Orienting International Facilities, Considerations and Framework, Trade-offs Associated with each Approach, Mapping the Different Approaches, Capacity Expansion Issues, Information Management for Global Logistics, The Global LIS/LITS, Capabilities and Limitations, Characteristics of Logistics Information and Telecommunications Systems.

20 Hours

Module 4

Performance Measurement and Evaluation in Global Logistics: Operations and Logistics Control, Key Activities Performance Information, Measuring Performance in Functional Integration, Measuring Performance in Sectorial Integration. Organizational Structure for Global Logistics excellence, The Organizational Implications of Sectorial Logistics Co-Operation, The International Factor in Global Organizations

20 Hours

SUGGESTED READINGS:

1. Rushton, A., Oxley, J &Croucher, P (2nd Edition, 2000). Handbook of Logistics and Distribution Management.Kogan Page.
2. Simchi-Levi, David, Kamisnsky, Philip, and Simchi-Levi, Edith. (2nd Edition, 2004). Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies. Irwin/McGraw Hill.

2.5: RETAIL SHOPPER BEHAVIOR -SDC2RM06

Objectives:

- **To familiarize with models and theories of consumer behaviour and marketing research procedures**
- **To examine the concepts and techniques involved in understanding retailer shopping behaviour**

Total Hours: 75 Hours per week: 5 (Theory 4, Practical 1) Credits: 5

Internal: 20, External: 80

Module 1

Customer Buying Behavior and Retail Sales: Basics of consumer shopping behavior, demonstrate products to customer, preparation of demonstration area, explaining the feature and benefits of products during product demonstration, logical sequencing involved in product demonstration. **15 Hours**

Module 2

Help customer choose right products.: Explaining productfeaturesandbenefitstocustomerstopromote sales andgoodwill, Helpingcustomerschooseproductsandhandlingcustomerqueries, Identifyingopportunitiesforup-selling andcross-selling, Collecting and interpreting customer responses and acknowledging customer buying decision, Techniques of closing sales and bill payment, Legal rights related to returning of unsatisfactory goods**20 Hours**

Module 3

Product, Feature and Benefits: Informingcustomersaboutspecialistproducts:Featuresand benefits, displaying productsofcustomer'sinterest, providing product information and response to customer queries.**10 Hours**

Module 4

Product Demonstration: Demonstration ofspecialistproducts, performing safe andvaluableproductdemonstration, safety and security of store duringdemonstration. **10 Hours**

Module 5

Maximize sales of goods and services: analyzing featuresand benefits ofproducts, identifyingandreportingpromotionalopportunities,promotingofproducts, recordingandevaluatingpromotion results.**10 Hours**

Module 6

Practical–(Retail Lab) Understanding consumer buying behavior and retail sales. Demonstrate products to customers. Help customers choose right products. Provide specialist support to customersto facilitate purchase. Help in maximizing product sales andparticipate in product promotions.

10 Hours

SUGGESTED READINGS:

1. Retail Marketing by A. Siva Kumar.
2. Patronage Behavior & Retail Management by Wiiliam R. Darden.

3. Retail Marketing by Gary Akchurest.
4. Cases in Retail management by R.K Srivastava.

2.6: LAB ON RETAIL SELLING SKILLS - SDC2RM07 (P)

Objectives:

- **To learn how to communicate with customers in a positive manner**
- **To learn how to deal with a customer to become a buyer**
- **To give practical training in self-introspection and stress management**

Total Hours : 60 Hours per week: 4 Credits: 4

Internal: 20, External: 80

Module 1

Practical Training in Lab: Conversational Skills Development on Phone

- How to make calls
- Answering the Calls
- Representing the Company
- Following the Company's Procedure

15 Hours

Module 2

Practical Training in Lab: Customer Dealing

- How to Build Patience
- Developing Listening Skills
- Humour in Conversation
- Understanding the Customer Needs
- Anger Control**15 Hours**

Module 3

Practical Training in Lab: Self Introspection

- Knowing Self
- SWOT Analysis
- Discovering own Personality

10 Hours

Module 4

Practical Training in Lab: Role Playing

- Admiring the Ideal
- Role play
- Real Life Clippings on Retail

10 Hours

Module 5

Practical Training in Lab: Stress Management

- Handling Complaints
- Handling Stress
- Keeping Calm in Stress
- Overcoming Anxiety

10 Hours

2.7: INTERNSHIP/PROJECT - SDC2RM08 (Pr)

STORE OPERATIONS

PRACTICAL TRAINING.

Credits: 5 **Total Hours : 60**

External Mark: 100

Objectives: The student will attach himself with a Retail organisation approved by the Department for a period of 2 weeks for industry training. The student should actively participate in the operations of the organization and should work like any other employee of that organization. He/ she should do a project work for the organization and the report (not less than 40 pages, A4 size) should be submitted to the organization and the department. The student has to face a viva based on his report

This module explains the different operating processes and their significance in running retail operations smoothly. It also helps develop necessary skills for planning, monitoring and controlling merchandise in a retail store.

Area of Study

- Managing Retail Operations
- What are Store Operations
- Productivity & Operating Efficiency
- Most Common Mistakes of Retailers
- Controls Essential for successful operations
- Measuring Performance
- Stock Turn
- Franchising
- Store Appearance & House Keeping
- Functions of a Store Manager
- Promotion, Planning and Execution Retail Operations

Suggested Instructional Methodology

Store visits have to be organized to get them acquainted them with day to day operations of a store

SUGGESTED READINGS:

1. Swapna Pradhan, Retailing Management, Tata Mc Graw Hill Publishing Company, New Delhi
2. Barry Berman, Joel R. Evans, Retail Management, Pearson Education
3. A. J. Lamba, The Art of Retailing, Tata McGraw Hill Publishing Co. Ltd. New Delhi

SEMESTER III

3.2: PERSONALITY AND SOFT SKILLS DEVELOPMENT- GEC3PS08

Objectives:

- **To develop allround personality to function effectively in different circumstances**
- **To develop effective communication skills and presentation skills**
- **To make the students self-confident individuals by mastering interpersonal skills, team management skills and leadership skills**

Total Hours : 60 Hours per week: 4 Credits: 4

Internal: 20, External: 80

Module 1

Introduction: Concept of Personality, Personality Consciousness, Personality Patterns, Personality Syndrome, Symbols of Self, Clothing Names and Nicknames, Speech, Age, Success, Reputation, Molding the Personality Pattern, Persistence and Change.

15 Hours

Module 2

Personality Determinants: Physical Determinants, Intellectual Determinants, Emotional Determinants, Social Determinants, Aspiration and Achievement, Educational Determinants, Family Determinants.

15 Hours

Module 3

Personality Development: Healthy Personalities, Developing Self Awareness, Managing Personal Stress, Solving Problems Analytically and Creatively, Grooming, Appearance, Dress Sense, Personal Hygiene, Etiquettes and Body Language, Time Management, Public Speaking.

15 Hours

Module 4

Interpersonal and Group Skills: Building Positive Relationship, Strategies for Gaining Power and Influence, Fostering Motivational Environment, Building Effective Teams, Interviewing Skills, Conducting Meetings.

15 Hours

SUGGESTED READINGS:

1. Hurlock, Elizabeth B, Personality Development, Tata McGraw Hill, New Delhi
2. McGrath, E.H., Basic Managerial Skills for All, Prentice Hall of India Pvt. Ltd., New Delhi
3. Wehtten, David A and Kim S Cameron, Developing Managerial Skills, Pearson Education, New Delhi

3.3: HUMAN RESOURCES MANAGEMENT (BC3C03) GEC3HR09

Objectives:

- **To familiarize the students with different aspects of managing human resources in an organisation**
- **To equip the students with basic knowledge and skills required for the acquisition, development and retention of human resources**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module I

Introduction to Human Resource Management—Importance--scope and objectives of HRM.Evolution of the concept of HRM- Approaches to HRM- Personal management Vs HumanResource Management-HRM and competitive advantage- Traditional Vs Strategic human resourcemanagement. **15 Hours**

Module II

Human resource planning, Recruitment and selection—Job analysis---process of job analysis job discretion- job specification-- methods of job analysis-- Conventional Vs strategic planning—job evaluation—Recruitment--source of recruitment-methods. **15 Hours**

Module III

Placement, Induction and Internal mobility of human resource. Training of employees—need for training-objectives- approaches --methods-training environment- areas of training- Training evaluation. **10 Hours**

Module IV

Performance appraisal and career planning. Need and importance- objectives process-methods and problems of performance appraisal- . Concept of career planning –features- methods –uses career development. **10 Hours**

Module V

Compensation management and grievance redressal. Compensation planning objectives-Wage systems- factors influencing wage system-. Grievance redressal procedure- discipline-approaches punishment-essentials of a good discipline system. Labour participation in management.

10 Hours

References:

1. Human Resource Management- Text and Cases-- VSP Rao
2. Human Resource Management – Pravin Durai
3. Personal Management and Human Resources—VenkataRatnam .Srivasthava.
4. A Hand Book of Personnel Management Practice—Dale Yolder

3.4: RETAIL STORES AND OPERATION MANAGEMENT- SDC3RM09

Objectives:

- **To acquaint the students with setting up a retailing business, its laws and regulations.**
- **To equip the students with management of retail stores including store accounting system and logistics management**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Introduction to Retailing: Importance of retailing in economy; Retailing in India: Growth, present size and nature, **Retailing Regulations and Laws:** Regulation of retail institutions in India: Shop andEstablishment Act, Labour Laws - Factories Act, Workmen Compensation Act;

20 Hours

Module 2

Types of Retailing: Stores classified by owners; Stores classified by merchandising categories; Wheel of retailing; Traditional retail formats *vs.* modern retail formats in India; Store and non-store based formats; Cash and carry business

Retailing models – Franchiser franchisee, directly owned; Co-operation and conflict with other retailers; Vertical marketing systems.**15 Hours**

Module 3

Setting up Retail organization - Size and space allocation, location strategy, factors affecting the location of Retail, Retail location Research and Techniques, Objectives of Good store Design.

5 Hours

Module 4

Store location: selecting a city, types of location within a city; trading area analysis, catchment area analysis; site evaluation, terms of occupancy.**5 Hours**

Module 5

Store Management- Responsibilities of Store Manager, Store Security, Parking Space Problem at Retail Centers,

Store Record and Accounting System - Coding System, Material Handling in Stores, Mall Management, Factor influencing Mall establishments.**10 Hours**

Module 6

Logistic and Information system - Improved product availability, Improvedassortments, Strategies, Quick Response System.**5 Hours**

SUGGESTED READINGS:

1. SwapanaPradhan- Retailing Management
2. George H, Lucas Jr., Robert P. Bush, Larry G Greshan- Retailing
3. A. J. Lamba- The Art of Retailing
4. Barry Berman, Joel R Evans- Retail Management; A Strategic Approach

3.5: STORE DISPLAY AND VISUAL MERCHANDISING - SDC3RM10

Objectives:

- **To provide the students with the ability to apply the principles of store design, layout and visual merchandising to retail outlets**
- **To learn to display products for attracting customers and choosing products.**

Total Hours : 75Hours per week: 5 (Theory 4, Practical 1) Credits: 5

Internal: 20, External: 80

Module 1

Merchandise Management: Objective, Presentation and Demonstrating Merchandise. Strategies for Creating Good –Looking Retails Stores Displays. Retail Plano Gram. Prepare product for display, Label product displays, Arrange and maintain products for display**15 Hours**

Module2

Visual Merchandise: Objective and Principle of successful visual Merchandise. Signage: Types and Character, Visual Display. Devising Merchandise Plan: Innovativeness, Assortment. Category Management. **Plan Visual Merchandise.** Interpret Visual\ Design Briefs for Retail Display. Role of Visual Merchandiser in Improving Store Visual Appeal.**15 Hours**

Module 3

Buyer's Behavior: Factor effecting retailer and shoppers. Attracting and Retaining Customers. Buying a Decision Process. Types of Customers. Elements of Display and Potential Places for Product Display.**15 Hours**

Module 4

Management of Service and Quality in Merchandise Planning, Role of Information Technology in Point-of-Sale System. Electronic Fund Transfer at POS. Data Ware House and Data Mining. General Merchandise Planning Software. Role of props, Equipment and Materials in Display, Updating Stock Records for Merchandise Display**.** **15 Hours**

Module 5

Practical (Retail- Lab)

Store Display and Visual Merchandising. Prepare to display products. Label displays of products. Arrange and maintain products for display. Interpret design briefs for retail displays. Identify merchandise and props to be featured in retail displays.**15 Hours**

SUGGESTED READINGS:

1. Retail Merchandising: Risch E. H.
2. Merchandise Buying : M Smith Bohlinger
3. Chetan Bajaj and Ranjith – Retail Management – Oxford University Press, Second Edition,
4. Gibson G Vedamani – Retail Management – Functional Principles and Practice, JaicoPublishing House, Second Edition, 2004

3.6: COMPUTERISED ACCOUNTING - SDC3RM11 (P)

Objectives:

- **To aid the students in utilizing the computer in maintaining accounting records and making management decisions.**
- **To develop skills in managing receivables and payables, pay roll and inventory modules.**

Total Hours : 75 Hours per week: 5 Credits: 5

Internal: 20, External: 80

Module 1

Introduction to computerised accounting: Computerised accounting Vs. Manual accounting- merits of computerised accounting – Tally 9 - Features of Tally – Screen components-Creation of Company- selecting a company – altering/ modifying company creation details – Deleting a company – F 11 Features – F 12 Configuration

20 Hours

Module 2

Accounts and Vouchers – account groups – pre-defined groups – creating single & multiple groups – creation of primary account groups – creating ledger accounts in single & multiple – displaying, altering and deleting account groups and ledgers – Accounting vouchers- entering transactions in accounting vouchers – bill wise details - altering and deleting a voucher entry – creating new voucher types – modifying an existing voucher – duplicating a voucher –optional vouchers – post-dated vouchers – reverse journal – bank reconciliation statement – creating budget - generating reports - configuring reports-

20 Hours

Module 3

Final Accounts: balance sheet – profit and loss account – trial balance – day books – account books – statement of accounts – ratio analysis - cash flow - fund flow – list of accounts – exception reports.

15 Hours

Module 4

Accounts with inventory – enabling F 11 and F 12 - stock category – stock group – single/multiple creation of stock category and stock group – creation of units of measurement – creating single/multiple stock items – creating go downs - displaying, altering and deleting stock groups, units, items and go downs – cost categories- cost centres – creating cost categories and cost centres - displaying, altering and deleting cost categories and cost centres– purchase / sales orders - Inventory vouchers - using inventory vouchers – using accounting vouchers with inventory details (invoice mode) - Tally Security - Tally vault – Tally audit – advanced security control – back-up and restore – inventory reports – stock summary - inventory books – statement of inventory.

20 Hours

Activities:

1. Create a new company, group, voucher and ledger and record minimum 10 transactions and display the relevant results.

2. Prepare trial balance, Profit and Loss A/c and Balance Sheet (with minimum of any five adjustments).

3. Prepare inventory statement using (Calculate inventory by using all methods)
    a) FIFO
    b) LIFO
    c) Simple Average Method
    d) Weighted Average Method
    e) Create an e-mail id and check the mail inbox.

4. Learn how to use search engines and visit yahoo com, rediff.com, hotmail.com and google.com

5. Visit Calicut University and college websites and collect the relevant data

3.7: LAB ON STORE DISPLAY AND CUSTOMER SERVICE - SDC3RM12 (P)

Objectives:

- **To provide in depth exposure in store display and visual merchandising**
- **To aid the students in understanding consumer buying behaviour and sales**
- **To guide the students in dealing with customers and managing customer relationship**

Total Hours : 60 Hours per week: 4 Credits: 4

Internal: 20, External: 80

Module 1

Store Display and Visual Merchandising: Prepare to display products. Label displays of products. Arrange and maintain products for display. Interpret design briefs for retail displays. Identify merchandise and props to be featured in retail displays.

15 Hours

Module 2

Understanding consumer buying behavior and retail sales: Demonstrate products to customers. Help customers choose right products. Provide specialist support to customers to facilitate purchase. Help in maximizing product sales and participate in product promotions.

10 Hours

Module3

Customer Experience Management: Help customers identify the products for purchase. Provide information on variants of products and help customers make buying decisions. Enable customers to make appropriate product choices. Ensure that customers fulfill their purchase process smoothly from start to billing. Apply the elements of effective Communication while interacting with Customers and other stakeholders.

15 Hours

Module4

Customer Service and Customer Relationship Management

Establish effective rapport with customers, respond appropriately to customers, communicate information's to customers, solve immediate customer service problems, identify repeated customer service problems and options for solving them. Identify appropriate actions that can be taken to avoid the repetition of customer service problems, Plan improvements in customer service based on customer feedback. Provide personalized sales and post sales service support. Review effectiveness of customer service delivery and suggest process improvements.

20 Hours

SEMESTER IV

4.2: ENTREPRENEURSHIP DEVELOPMENT (BC4A13) – GEC4ED11

Objectives:

- **To help the students develop and systematically apply an entrepreneurial way of thinking that allow them to identify and create business opportunities that may be commercialized successfully**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module I

Entrepreneur and Fundamentals of Entrepreneurship: Entrepreneurial competencies –Factors affecting entrepreneurial growth - Role of entrepreneur in economic development -Challenges of women entrepreneurs.

15 Hours

Module II

Micro, Small and Medium Enterprises: Legal Framework - Licenses - Role of promotional institutions with special reference toKINFRA , KITCO ,MSME & DICs -Concessions -Incentives and subsidies.

15 Hours

Module III

Project Management: Feasibility and Viability Analysis-Technical - Financial - Network -Appraisal and evaluation - Project Report preparation.

15 Hours

Module IV

Identification of Business Opportunities in the Context of Kerala: Rate of ED Clubs– Industrial Policies -Skill development for entrepreneurs - Business Incubation: Meaning - Setting up of Business Incubation Centres.

15 Hours

Reference Books:

1. S.S. Kanka , Entrepreneurial Development, Sultan Chand.
2. PrasannaChandra , Project Planning, Analysis, Selection, Implementation andReview, Tata McGraw Hill.
3. Vasantha Desai , Dynamics of Entrepreneurial Development, Himalaya
4. C.B.Gupta& N.P. Sreenivasan , Entrepreneurial Development, Sultan Chand.
5. Nirmal K Gupta, Small Industry-Challenges and Perspectives, Anmol Publications.
6. Vasantha Desai, Small scale Industries and Entrepreneurship, Himalaya.

4.3: QUANTITATIVE TECHNIQUES FOR BUSINESS (BC4C04) - GEC4QT12

Objectives:

- **To provide a basic understanding of the value and use of quantitative methods in administrative and operational problem solving and decision making**
- **To develop an understanding of a variety of statistical and quantitative techniques applicable to a wide range of business situations**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module I

Quantitative Techniques - Introduction - Meaning and definition - Classification of Q.T QT and other disciplines -Application of QT in business -Limitations. **5 Hours**

Module II

Correlation and Regression Analysis : Meaning and definition of Correlation - Karl Pearson'sco-efficient of correlation - Rank correlation - Regression - Types -Determination of simple linear regression - Coefficient of determination. **10 Hours**

Module III

Set Theory - Probability: Concept of probability - Meaning and definition - Approaches to probability - Theorems of probability - Addition Theorem - Multiplication Theorem –Conditional probability- Inverse probability- Baye'sTheorem.**10 Hours**

Module IV

Theoretical Distribution: Binomial distribution - Basic assumptions and characteristics -Fitting of binomial distribution - Poisson distribution - characteristics - Fitting of Poisson distribution - Normal distribution - Features and properties - Standard normal curve

15 Hours

Module V

Statistical Inference: Testing of hypothesis - Procedure - Error in testing - Two tail tests and one tail tests - Non parametric tests (Chi-square test only) - Parametric tests - Z test -Test of significance of large samples-Test for two sample means-Small sample mean tests - Students t test - Analysis of Variance - F test - One way ANOVA.**20 Hours**

Reference Books:

1. Richard I. Levin and David S. Rubin, Statistics for Management, Prentice Hall ofIndia, latest edition.
2. S.P.Gupta, Statistical Methods, Sultan Chand, latest edition
3. G.C.Beri, "Statistics For Management",Tata Me Graw Hill, 2003.
4. J.K. Sharma, "Business Statistics:, Pearson, 2004
5. R.P.Hooda, "Statistics for Business", Me Millan.
6. Levine Krebiel&Bevenson, "Business Statistics", Pearson edition, Delhi..

4.4: ELEMENTS OF SALESMANSHIP - SDC4RM13

Objectives:

- **To give the students basic idea of salesmanship and career opportunities as a salesman**
- **To aid the students with techniques of sales presentation and buying behaviour**

Total Hours : 60 Hours per week: 4 Credits: 4

Internal: 20, External: 80

Module 1

Introduction: Concept of Salesmanship, Changing Roles and Functions of a Salesman. Importance of Personal Selling In the Context of Competitive Environment. Types of Selling.

5 Hours

Module 2

Salesman Career: Career Counseling & Guidance, Types of Salesman, Retail, Whole Sale, Specialized Sales Man, Duties, Responsibilities, Opportunities and Growth in the Sales Field, Qualities, Physical, Mental, Psychological, Social and Cultural - Rewards in Selling: Financial and Non-Financial (Incentives), Sources of Recruitments of Sales Force, Methods of Training Salesmen. Importance of Complete Product Knowledge-Major Areas of Knowledge-Manufacturers How Used, Life of Products, Guarantee Price, How other Customer Liked it etc. Sources of Product Information: Published Sources and unpublished Sources, Packing, Labeling and other Specification Enclosure etc. 2**5 Hours**

Module 3

Buyer Behaviour: Introduction - Classification of Buyer-Industrial, Government and Ultimate Consumers.Buying Motives- Rational and Emotional Factors Influencing Purchase of a Product.Shopping Behaviour-Frequency, Place and Unit of Purchase. Analysis and Consumer Profile- Age, Sex, Income, Educational, Cultural and Linguistic Background etc. - Methods of Identifying Customer Perceptions Influencing Decision Regarding Purchase of Product - Finding out Customer's Needs, Problems and Potentialities**. 15 Hours**

Module 4

Sales Presentation: Introduction - Planning for Sales Presentation Setting Objectives for the Sales Planning, Sales Talk, Supporting Evidence etc. - Steps in Sales Presentation - Establishing Report, Introducing Product by Highlighting Benefits and Providing Information Relating to Product Futures and Benefits**. 15 Hours**

SUGGESTED READINGS:

1. Little Red Book of Selling by Jeffrey Gitomer's
2. Secrets of Closing the Sale, Zig Ziglar
3. How to Sell Anything to Anybody, Joe Girard
4. How to Master the Art of Selling, Tom Hopkins

4.5: RETAIL ADVERTISING AND SALES PROMOTION - SDC4RM14

Objectives:

- **To familiarize students with major concepts in advertising and sales promotion.**
- **To provide the students a basic idea on copywriting**
- **To acquaint the students with sales promotion and different techniques of sales promotion**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Introduction: Meaning, nature and purpose of advertising; advertising in the context of retailing; Integrated marketing communication (IMC), Advertising management process – An overview; Setting of retail advertising objectives and budgets. Media Decisions: Media planning - Media mix decisions: Popular media vehicles used in retail sector; Media timing and Scheduling.

15 Hours

Module 2

Copy Writing:; Different types of appeals; Copy layout; Evaluation of retail advertising effectiveness. Advertising Agencies: Features, functions and types; Selection of advertising agency -ethical and legal aspects of retail advertising.**10 Hours**

Module 3

Introduction to Sales Promotion: Meaning, nature and role of sales promotion; Major objectives and limitations of sales promotion; Major types of sales promotion tools and techniques – Manufacturer *vs.* Retail store sales promotion, Consumer vs. trade sales promotion. Retail Store Sales Promotion: Objectives **15 Hours**

Module 4

Trade promotion: Meaning and objectives; Major trade promotion schemes – Merchandise allowance, sales contests, point-of-purchase display assistance, trade discount, co-operative advertising.**10 Hours**

Module 5

Sales Promotion Planning and Control: Establishing objectives of sales promotion and selecting consumers for sales promotion; Developing, pre-testing, implementing, controlling and evaluating the -sales promotion programme.

10 Hours

References:

1. Newman, Andrew J. and Peter Cullen, Retailing Environment and Operations, ThomsonLearning, India, 2007.
2. Clow, Kenneth E., Integrated Adverlising, Promotion and Marketing Communications, Pearson Education, 2007.
3. Wells, William, John Burnet and Sandra Mriarty, Advertising Principlc3 and Practicc3, 51h edition, Pearson Education, 2003.

4.6: COMPUTER PRACTICAL I (MS OFFICE)SDC4RM15 (P)

Objectives:

- **To familiarize students with basic MS Office appliocations**
- **To equip the students with typing skills and help them to learn the features and applicability of MS Word**

Total Hours : 75 **Hours per week: 5** **Credits: 5**

Internal: 20, External: 80

I - MS WORD

1. Type Chairman's speech/ Auditor's report / Minutes/ Agenda and perform the following operations: Bold, Underline, Font Size, style, Background color, Text color, Line spacing, Spell Check, Alignment, Header & Footer, Inserting pages and page numbers, Find and Replace.
2. Prepare an invitation for the college function using Text Boxes and Clip Arts.
3. Design an Invoice and Account Sales by using Drawing Tool Bar, Clip Art, Word Art, Symbols, Borders and Shading.
4. Prepare a Class Time Table and perform the following operations: Inserting the Table, Data Entry, Alignment of Rows and Columns, Inserting and Deleting the Rows and Columns and Change of Table Format.
5. Prepare a Shareholders meeting letter for 10 members using mail merge operation.
6. Prepare Bio-Data by using Wizard/ Templates.

II - MS POWERPOINT

1. Design presentation slides for a product of your choice. The slides must include name, brand name, type of product, characteristics, special features, price, special offer etc. Add voice if possible to explain the features of the product. The presentation should work in manual mode.
2. Design presentation slides for organization details for 5 levels of hierarchy of a company by using organization chart.
3. Design slides for the headlines News of a popular TV Channel. The Presentation Should contain the following transactions: Top down, Bottom up, Zoom in and Zoom out - The presentation should work in custom mode.
4. Design presentation slides about an organization and perform frame movement by interesting clip arts to illustrate running of an image automatically.
5. Design presentation slides for the Seminar/Lecture Presentation using animation Effects and perform the following operations: Creation of different slides, changing background color, font color using word art.

SUGGESTED READINGS:

1. Windows Based Computer Courses, Rachhpal Singh &Gurvinder Singh.

4.7: INTERNSHIP/PROJECT – SDC4RM16 (Pr)

FUNDAMENTALS OF VISUAL MERCHANDISING - SDC4RM16 (Pr)

Objectives:

- **To get practical training in visual merchandising concepts and other arrangements inside a store**

Total Hours : 75 **Credits: 5**

External: 100

Practical Training

This module aims at learning basic visual merchandising concepts and theories essential in the store image, its merchandise, and displays.

Detailed Contents: Introduction to VM

- Other parts of a Store
- Displays
- Design
- Mannequins
- Props & Signage
- Tools and Materials of the Trade
- Fixtures and Lighting
- Store Planning and Layout
- Store Fixturing Plans
- Store Renovation including budgets

Suggested Instructional Methodology

Extensive practical sessions, Visit to various stores and projects, Putting up displays etc.

SUGGESTED READINGS:

1. Dravid Gilbert, Retailing Marketing, Prentice Hall - Pearson Education
2. George H, Lucas Jr, Robert P. Bush, Larry G. Gresham, Retiling, All India Publishers and Distributors, Chennai
3. Swapna Pradhan, Retailing Management, Tata Mc Graw Hill Publishing Company, New Delhi

SEMESTER V

5.1: CONFERENCE AND EVENT MANAGEMENT -GEC5EV13

Objectives:

- **To give the students an overview of event management and marketing**
- **To equip the students with idea of event design, planning and promotion**

Total Hours : 60 Hours per week: 4 Credits: 4

Internal: 20, External: 80

Module 1

Event Management: Introduction, The Emergence of Events Industry, types Of Events, Definitions of Event management, Importance of Event Management,

15 Hours

Module 2

Event Design: Event Design and Concept, Role of Event Management Companies, the Scope of Event Management,

10 Hours

Module 3

Event Marketing: Introduction, Event Promotion, Promotional Strategies, and five P's of Event Marketing: Product, promotion, price, public relations, and place. Internal versus External Event, marketing, Event Sponsorship, Internet Event Marketing, let us sum up: lesson end activity, keywords, and questions for discussion

20 Hours

Module 4

Event Planning

Introduction, key Steps for Planning an Event, Out Sourcing, Let Us Sum Up: Lesson end Activity, Keywords and Questions for Discussion

10 Hours

Module 5

Event Promotion: Introduction, Promoting an Event, Identifying

5 Hours

SUGGESTED READINGS:

1. Judy Allen, The Business of Event Planning: Behind-the-Scenes Secrets of Success Special Events
2. Meegan Jones , Sustainable Event Management: A Practical Guide
3. Mike van der Vijver and Eric de Groot, Into the Heart of Meetings: Basic Principles of Meeting Design

5.2: MALL MANAGEMENT - GEC5MM14

Objectives:

- **To familiarize the students with the concept of shopping mall and its management**
- **To get them learn the operations of a mall, resource allocation and types of retail formats inside a shopping mall**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Introduction: Concept of shopping mall, Growth of malls in India, Mall positioning strategies, Strategic planning for malls.

15 Hours

Module 2

Mall Management: Concepts in mall design, Factors influencing malls' establishment, Recovery management, Aspect in finance, Human resources, Security and accounting, Legal compliances and issues, measuring mall performance.

15 Hours

Module 3

Mall Operations: Store allocation, Leasing negotiations, Maintenance and repairs, Security and safety procedures and regulations, Operational activities, Footfalls measurement, Common area management

10 Hours

Module 4

Tenant Management: Selection of anchor tenant, Tenant mix, Mall resource allocation, Owner-tenant relationship

10 Hours

Module 5

Types of retail formats - Multiplexes, Food courts, Branded stores, Specialty stores, Hypermarkets, Supermarkets,

10 Hours

SUGGESTED READINGS:

1. SwapnaPradhan, "Retailing Management- Text & Cases", Tata McGraw Hill
2. Fleming.P, "Guide To Retail Management" Jaico Publications.
3. Gopal, W, "Retail Management" ICFAI.
4. S.L.Gupta, "Retail Management"
5. Mitra, S.N., "Retail Management", Pointer Publication, Jaipur.
6. Berry Berman & J.R. Evans, "Retail Management – A Strategic approach" Prentice Hall of India, New Delhi.

5.3: RETAIL PLANNING - SDC5RM17

Objectives:

- **To familiarize the students with marketing function in a retail scenario**
- **To give them idea on the legal compliance of a retail store**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Marketing & Strategic management: Marketing: Retailing, Role, Relevance & Trends. - Retail Customer-Retail market segmentation & franchising-Relationship marketing in Retailing.

10 Hours

Module 2

Retailing in Financial sector - Retailing in banking and other financial services, mutual funds and Insurance**5 Hours**

Module 3

Human Resources Management in Retailing - Human Resources**:** Retail organization-Laws involved in HR.- Motivation-Customer psychology-Training needs for employee recruitment Best Practices- How to Avoid Mis Hires– Coaching to fix weakness-Interviews guide- Avoiding Legal Problems: Bulletproof Approach.**15 Hours**

Module 4

Legal compliances for a Retail Store - Legal compliances: License-Contracts & Recovery-Legal Process-PF/ESIC & Exemptions-Food & Restaurants-PPF-IR – Law- Shops & establishments-IPR Patents, Copyright & Trademarks- Inclusion of Service Mark- Procedure and Duration of Registration- Customer Rights- Consumer Protection Acts- -Unfair Trade Practices- -Holding of Contests and Schemes- Correctness of Representation- The Standards of Weights and Measures Act – Procedures applicable for a Retail Store**20 hours**

Module 5

Mall Management - Mall Management**:-**Types of Various retail formats-Concepts in mall design-Factors influencing Malls establishments-Aspects in Finance-Aspects in security / accounting -Aspects in HR-Aspects in Quality management-Statistical methods used in measuring mall performance.**10 Hours**

SUGGESTED READINGS:

1. Retailing Management Text & Cases- SwapnaPradhan- The McGraw Hill Companies
2. Retailing Management -Levy &Weitz- The McGraw Hill Companies
3. Legal Aspects of Business –AkhileshwarPathak- The McGraw Hill Companies
4. Top Grading – How Leading Companies Win by Hiring, Coaching and Keeping the BestPeople- Bradford D Smart- Viva Books Pvt Ltd.

5.4: RETAIL TARAGETS AND LOCATIONS - SDC5RM18

Objectives:

- **To help the students in understanding the procedures involved in choosing store location and site selection**
- **To equip the students in identifying and understanding customers and consumer decision process**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Identifying and Understanding Customers: Demographics and Lifestyles of customers/consumers with Retailing Implications, Consumer Needs and Desires, Shopping Attitudes and Behaviors, Consumers' Patronage.

10 Hours

Module 2

Consumer Decision Process - Decision Process and Types of Consumer Decision Making; Impulse Purchases; Customer Loyalty. Environmental Factors Affecting Consumers

10 Hours

Module 3

Information Flows: Meaning, Information Gathering and Processing, Retail Information System (RIS): Constructing and Using the RIS, Good Insights for Retailers for RIS, Impacted Negative Customer Service **10 Hours**

Module 4

Choosing a Store Location: Importance, Trading-Area Analysis, benefits, Geographic information System, Size and Shape of Trading Areas for new Stores, Reilly's Law of Retail Gravitation, Trading Area Research; Characteristics of Trading Areas, Its Population, The Nature of competition and the Level of Saturation.**15 Hours**

Module 5

Site-Selection: Types of Location; Central, Secondary and Neighborhood Business Districts, String; The Planned Regional Community Neighborhood Shopping Centers, The Choice and Evaluation of General Location; Pedestrian Traffic, Parking and Transportation Facilities, Store Composition, Terms of Occupancy**15 Hours**

SUGGESTED READINGS:

1. SwapnaPradhan, "Retailing Management- Text & Cases", Tata McGraw Hill
2. Gopal, W, "Retail Management" ICFAI.
3. S.L.Gupta, "Retail Management"
4. Mitra, S.N., "Retail Management", Pointer Publication, Jaipur.
5. Berry Berman & J.R. Evans, "Retail Management – A Strategic approach" Prentice Hall of India, New Delhi.

5.5: RETAIL DISTRIBUTION MANAGEMENT, STORES LAYOUT &DESIGN- SDC5RM19

Objectives:

- **To familiarize the students with the channels of markets and concepts of wholesale and retail**
- **To help them understand about store design and retail communication mix**

Total Hours : 60 **Hours per week: 4** **Credits: 4**

Internal: 20, External: 80

Module 1

Marketing Channels: Definition & Importance, Functions of Marketing Channels Intensive, Selective & Exclusive distribution strategies, Decisions in Channel Management Integrated Marketing Channels **Types of Channels:** Channels for Consumer goods, Industrial goods & Services –Horizontal, Vertical, Multichannel Marketing Systems**20 Hours**

Module 2

Wholesale and Retail: Concept, Importance, Functions-Wholesaler Marketing Decisions – Trends in Wholesaling Retailing: Concept, Importance, Functions – Indian Vs. Global Scenario Retail Location: Factors affecting location decision-Site Selection- Location based retail Strategies**15 Hours**

Module 3

Store Design: Interiors and Exteriors – Store layout – Types of layouts - Factors affecting store layout – Store image mix – Store Façade – The Internet Store. Store Administration: Floor space management-Managing store inventories and display**10 Hours**

Module 4

Store design and engineering: store design and retailing strategy, store design and facilities planning, store layout and departmentalizing, department space requirement, department allocations, internal layout of departments**10 Hours**

Module 5

Retail Communication Mix: Planning retail communication – Managing in-store promotions and events.

5 Hours

SUGGESTED READINGS:

1. Channel Management-Stern-El-Ansary
2. Retailing Management-SwapnaPradhan
3. Physical Distribution & Logistics Management-Dr. SubhashBhave
4. Channel Management & Retail Management-MeenalDhotre
5. David j Rachman retail strategy and structure: A Management approach, prentice hallof India limited.
6. Bermon, Barry and Joel r Evans, retail management, prentice hall of India limited, New Delhi.

5.6:COMPUTER PRACTICAL-II (MS OFFICE)– SDC5RM20 (P)

Objectives:

- **To give practical knowledge in simple and advanced spreadsheet**
- **To equip the students with MS Excel and its features**

Total Hours : 75 **Hours per week: 5** **Credits: 5**

Internal: 20, External: 80

Module 1

MS–EXCEL: Introduction to Worksheet/Spreadsheets, Creating a simple Worksheet, Computations in a Worksheet, Printing the Worksheet, Graphs, Data Sorting, Filling, Query, Filtering.ApplyingFormulas.**15 Hours**

Module 2

ADVANCED EXCEL: Functions and Formulas: Formulas with Multiple Operators, Inserting and Editing a Function, Auto Calculate and Manual Calculation, Defining Names, Using and ManagingDefined Names, Displaying and Tracing Formulas, Understanding Formula Errors, Using Logical Functions (IF), Using Financial Functions (PMT), Using Database Functions(DSUM), Using Lookup Functions (VLOOKUP), User Defined and Compatibility Functions, Financial Functions, Date & Time Functions, Math & Trig Functions, Statistical Functions, Database Functions, Text Functions, Logical Functions, Information Functions, Engineering and Cube Functions.**20 Hours**

Module 3

Working with Data Ranges: Sorting by One Column, Sorting by Colors or Icons, Sorting by Multiple Columns, Sorting by a Custom List, Filtering Data, Creating a Custom AutoFilter, Using an Advanced Filter. **Working with PivotTables**: Creating a PivotTable, Specifying PivotTable Data, Changing aPivotTable's Calculation, Filtering and Sorting a PivotTable, Working with PivotTable Layout, Grouping PivotTable Items, Updating a PivotTable, Formatting a PivotTable,Creating a PivotChart, Using Slicers, Sharing Slicers between PivotTables.**Analyzing and Organizing Data:** Creating Scenarios, Creating a Scenario Report, Workingwith Data Tables.

20 Hours

Module 4

Working with Web and External Data: Inserting a Hyperlink, Importing Data from anAccess Database or Text File, Importing Data from the Web and Other Sources, Workingwith Existing Data Connections. **Customizing Excel**: Customizing the Ribbon, Customizing the Quick Access Toolbar, Usingand Customizing AutoCorrect, Changing Excel's Default Options, Creating a CustomAutoFill List, Creating a Custom Number Format.**20 Hours**

SUGGESTED READINGS:

1. Windows Based Computer Courses, Rachhpal Singh &Gurvinder Singh.
2. Information Technology, Hardeep Singh &Anshuman Sharma.

5.7: LAB ON ADVERTISEMENT AND SALES PROMOTION - SDC5RM21 (P)

Objectives:

- **To give practical knowledge in making different kinds of advertisements- printed and visual**

Total Hours : 75 **Hours per week: 5** **Credits: 5**

Internal: 20, External: 80

1. Brochure and notice making
2. Logo designing
3. Preparation of collage
4. Advertisement- Print media and Visual Media
5. Make advertisement videos
6. Flash mob
7. Preparation of Blog
8. Online advertisement
9. Demonstration of personal selling
10. Prepare online contests to motivate target groups to try the product or to create awareness among people about the newly started retail shops
11. Preparation of column advertisements
    a) Product advertisement
    b) Store advertisement
    c) Job opportunities
    d) Buy and sell
    e) Lost and found

Assignment:

1. Students have to select a particular company and write an assignment on different sales promotion techniques of the company
2. Sort out 10 best Print media and Visual media advertisements and submit the file

The student has to keep all the reports and records of all the modules in one single file

SEMESTER VI

6.1: MAJOR INTERNSHIP-SDC6RM22

Total Hours: 900 **Credits: 30**

Objective

The major project should be carried out in the any retail store. The major idea for internship is to implement the things learned and to get a real life experience. The Evaluation process follows 100% external assessment. Short-term working experience in retail store will help students better understand the organized retail industry and build a strong network with experts and fellows in the retail industry field, which can positively contribute to future career development. In addition, it will help students to identify if they really enjoy working in industry and help them in choosing a future career the course.

SUGGESTED READINGS:

H. FREDERICK SWEITZER, MARY A. KING: The Successful Internship

UNIVERSITY OF CALICUT

B. Voc. Degree Programme in

OPTOMETRY AND OPHTHALMOLOGICAL TECHNIQUES

SCHEME AND SYLLABUS

For General and Skill Papers

2018 ADMISSION ONWARDS

BOARD OF STUDIES IN PHYSICS

CALICUT UNIVERSITY
THENHIPALAM, KERALA, 673 635, INDIA

PREAMBLE

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF. The B.Voc. programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles and their NOSs alongwith broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

The B. Voc. Programme is designed to bridge the potential skill gap identified. The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components. The general education component provides emphasis to Communication skill, Presentation skill, Health and Safety, Industrial Psychology, Environmental awareness, Entrepreneurship development and other relevant subjects in the field. General Education Components should not exceed 40% of the curriculum. Skill Development Component should match the skill gap identified at least 50% of Skill Development Component should be allotted to practical and can grow up to 60% based on the nature of the course. The practical component can be carried out in the college and/or the industry partner premises.

B.Voc. Optometry and Ophthalmological Techniques, is a graduate programme which includes various branches of Applied Physics and Biology. In the present epoch, this course has immense relevance, in the field of education and occupation. The course has been designed to mould the best optometrists. Eyes are the greatest gift of god to human beings. For what the beautiful world would be if one could not see that. Every third blind person is an Indian and there are many others suffering from defective eye problems. Cataract, Diabetic retinopathy and macular degeneration have become common diseases among aged people. Youth also suffer several vision problems. There are many specialty hospitals in Kerala which offer treatment of ophthalmic diseases. Job opportunities for trained optometrists are in plenty in the state.

An effective science education can be imparted at the undergraduate level only by revamping the curriculum according to the needs and developments of the modern society from time to time. To achieve this goal, the curriculum should be restructured by giving emphasis on various aspects such as the creativity of students, knowledge of current developments in the discipline, awareness of environmental impacts due to the development of science and technology, and the skills essential for handling equipments and instruments in laboratories and industries. The units of the syllabus are well defined. The number of contact hours required for each unit is also given. A list of reference books is provided at the end of each course.

AIMS

This curriculum has been prepared with the objective of giving sound knowledge and understanding optometry and ophthalmological techniques to undergraduate students. The goal of the syllabus is to equip students with the potential to contribute to academic and industrial environments. This curriculum will expose students to various fields of optometry and develop interest in related disciplines.

BROAD OBJECTIVE

The B. Voc courses are designed with the following objectives,

- To provide judicious mix of skills relating to a profession and appropriate content of General Education.
- To ensure that the students have adequate knowledge and skills.
- To understand basic facts and concepts in optometry and ophthalmological techniques
- To develop skills in the proper handling of optometric instruments.
- To be exposed to the different processes used in industries and their applications.
- To provide flexibility to the students by means of pre-defined entry and multiple exit points.
- To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.

SEMESTER

A term consisting of 90 working days including examination days distributed over a minimum of 18 weeks of 5 working days consisting of six hours. Total credits in a semester: 30 (equivalent to 450 hours). For final semester internship, the total duration is 900 hours.

ELIGIBILITY AND INDEX CALCULATION

The admission to B Voc programme will be as per the rules and regulations laid out by the University of Calicut for UG admissions. Candidates who have passed pre degree or plus two course(HSE/VHSE/Similar) in any stream with not less than 45% marks in aggregate shall be eligible to apply for admission to the B.Voc Optometry and ophthalmological techniques programme. (No age limit).

Index mark calculation:

Plus two marks (HSE, out of 1200.Other streams should be converted to this appropriately). Additional marks are as follows:

1. 50% of the marks scored (in percentage) for Physics at +2 level
2. 50% of the marks scored (in percentage) for Biology at +2 level
3. 25% of the marks scored (in percentage) for Chemistry/Maths/Computer Science at +2 level
4. +2/ VHSE/ CBSE/ Diploma/ Certificate Course - studied ophthalmology related subjects – 10 marks.
5. NSS-10
6. NCC- as per the A,B,C certificate (5,10,15)

RESERVATION/QUOTA

A maximum of 50 students can be admitted to one B. Voc programme. The students can be admitted only to the first semester (except for diploma holders). No students are admitted directly to the Third and Fifth semester in any circumstance except for diploma holders. Diploma holders may be permitted to third semester directly as mentioned above.

The reservation rules for Government/Aided Colleges are as same as that of the regular UG programmes conducted in colleges affiliated to this university.

LEVELS OF AWARDS

B. Voc is a programme with multiple exits. Following table shows the various certificates and their duration.

Awards	Duration
Diploma	2semester
Advanced diploma	4 Semester
B Voc Degree	6 Semester

ASSESSMENT OF STUDENTS

Assessment of students for each subject will be done by internal continuous assessment and Semester-End examinations. This dual mode assessment will be applicable to both Theory and Practical courses except for internship and project. Total marks in theory course reflect 80 marks external and 20 marks internal assessments. The mark division for practical courses is 20 marks internal and 80 marks external. For internship and project, there is no internal assessment

Sl No	Courses	Internal	External
1	Theory	20	80
2.	Practical	20	80
3.	Internship/ Project	0	100

INTERNAL EVALUATION

20% of the total marks in each course are for internal evaluation. The colleges shall send only the marks obtained for internal examination to the university

The mark distribution to award internal continuous assessment marks for **theory** subject should be as follows:

Assessment	Mark
Test papers (minimum two, best two out of three is preferred)	10
Assignments (minimum two) such as home work, problem solving, group discussions, quiz, literature survey, seminar, term-project, software exercises, etc.	5
Regularity in the class	5

The mark distribution to award internal continuous assessment marks for **practical** subject should be as follows:

Assessment	Mark
Evaluation in the lab and Rough Record	10
End-semester Test	4
Viva	1
Regularity	5

Note:

No candidate will be permitted to attend the end-semester practical examination unless he/she produces certified record of the laboratory. Full credit for regularity in the class can be given only if the candidate has secured minimum 90% attendance in the subject. Attendance evaluation for each course is as follows

% of attendance	*Marks*
Above 90%	5
85-89%	4
80-84%	3
76-79%	2
75%	1

PATTERN OF QUESTIONS FOR SEMESTER-END EXAMINATIONS

The question papers of Semester-End examinations of theory subjects shall be able to perform achievement testing of the students in an effective manner. Duration of Semester- End examinations will be 3 hours. The pattern of questions for theory subjects shall be as follows:

For Theory

Section	**Total No.of questions**	**No.of question to be answered**	**Marks for each question**	**Total marks**
A:Very short/Objective Type	10	10	1	10
B:Shortanswer type	12	8	2	16
C: Short essay type	9	6	4	24
D: Essay type	4	2	15	30
TOTAL				80

For Practical:

Marks Distribution	**Total marks**
Theory/ Algorithm/Flow diagram	20
Implementation	30
Result/Output	10
Record	10
Viva	10
Total	80

Mark distribution for internship:

Distribution	**Marks**
Content and relevance or Dissertation	60
Viva	20
Presentation	20

GRADING- INDIRECT GRADING SYSTEM

Indirect Grading System based on a 7 point scale is used to evaluate the performance of students.

Marks scored	Grade	Remarks
90 and Above	A+	Outstanding
80 to 89	A	Excellent
70 to 79	B	Very Good
60 to 69	C	Good
50 to 59	D	Satisfactory
40 to 49	E	Adequate
Below 40	F	Failure

CONTENTS

COURSE STRUCTURE

CREDIT DISTRIBUTION

Semester	Common Course		General Component	Skill Component	Total
	English	Additional Language			
I	4	4	4	4+4+5+5=18	30
II	4	4	4	4+5+5+4=18	30
III	4	-	4+4=8	4+4+4+6=18	30
IV	4	-	4+4=8	4+5+5+4=18	30
V	-	-	4	4+4+4+4+6+4=26	30
VI	-	-	-	30	30
Total	**16**	**8**	**28**	**128**	**180**

DETAILED CURRICULUM

SEMESTER I									
C.No	**Course Code**	**Course Name**	**Credit**	**Marks**			**Hrs/wk**		
				Int	**Ext**	**Tot**	**T**	**P**	**Total**
1.1	GEC1EG01	AO1 Transactions Essential English Language Skills	4	20	80	100	4		4
1.2	GEC1ML02 GEC1AR02 GEC1HD02	MAL1A01(2) Malayalam Bhashayum Sahithyavum-I ARB1A07(2)(LRP Pattern) –Essential Skills in Arabic A07(3) Prose and one act plays	4	20	80	100	4		4
1.3	GEC1GA03	General Anatomy & Physiology	4	20	80	100	4		4
1.4	SDC1PO01	Physical Optics	4	20	80	100	4		4
1.5	SDC1MP02	Microbiology & Pharmacology	4	20	80	100	4		4
1.6	SDC1GA03 (P)	General Anatomy & Physiology-Practical	5	20	80	100		5	5
1.7	SDC1MP04 (P)	Microbiology & Pharmacology - Practical	5	20	80	100		5	5
Semester I Total			**30**			**700**	**20**	**10**	**30**

SEMESTER II									
C.No	**Course Code**	**Course Name**	**Credit**	**Marks**			**Hrs/wk**		
				Int	**Ext**	**Tot**	**T**	**P**	**Total**
2.1	GEC2EG04	A02 Ways with Words	4	20	80	100	4		4
2.2	GEC2ML05 GEC2AR05 GEC2HD05	MAL2A02 (2) Malayalam- Bhashayum Sahithyavum-II ARB2A082(2)– Reading Arabic Prose & Poetry A09 Poetry and Short Stories	4	20	80	100	4		4
2.3	GEC2OA06	Ocular Anatomy & Physiology	4	20	80	100	4		4
2.4	SDC2GO05	Geometrical Optics	4	20	80	100	4		4
2.5	SDC2BC06	Biochemistry	5	20	80	100	5		5
2.6	SDC2OA07 (P)	Ocular Anatomy & Physiology-Practical	5	20	80	100		5	5
2.7	SDC2INT08 (Pr)	Internship/Project	4	0	100	100		4	4
Semester II Total			**30**			**700**	**21**	**9**	**30**

Qualification Pack-HSS/Q8601 -Basic Health Volunteer (Equivalent to ASHA)

SEMESTER III									
C.No	**Course Code**	**Course Name**	**Credit**	**Marks**			**Hrs/wk**		
				Int	**Ext**	**Tot**	**T**	**P**	**Total**
3.1	GEC3EG07	A03 Writing for academic & professional success	4	20	80	100	4		4
3.2	GEC3OD08	Ocular Disease	4	20	80	100	4		4
3.3	GEC3CR09	Clinical Refraction	4	20	80	100	4		4
3.4	SDC3PI09	Pathology & Immunology (General & Ocular)	4	20	80	100	4		4
3.5	SDC3OI10	Ophthalmic Instrumentation & Procedure	4	20	80	100	4		4
3.6	SDC3PI11 (P)	Pathology & Immunology –Practical	4	20	80	100		4	4
3.7	SDC3OI12 (P)	Ophthalmic Instrumentation-Practical	6	20	80	100		6	6
Semester III Total			**30**			**700**	**20**	**10**	**30**
SEMESTER IV									
C.No	**Course Code**	**Course Name**	**Credit**	**Marks**			**Hrs/wk**		
				Int	**Ext**	**Tot**	**T**	**P**	**Total**
4.1	GEC4EG10	AO4 Zeitgeist : Readings on society and cultures	4	20	80	100	4		4
4.2	GEC4ES11	(EWM1B01) Environmental Science	4	20	80	100	4		4
4.3	GEC4CO12	Community Optometry	4	20	80	100	4		4
4.4	SDC4VO13	Visual Optics	4	20	80	100	4		4
4.5	SDC4DO14	Dispensing Optics	5	20	80	100	5		5
4.6	SDC4DO15(P)	Dispensing Optics-Practical	5	20	80	100		5	5
4.7	SDC4INT16(Pr)	Internship/ Project	4	0	100	100		4	4
Semester IV Total			**30**			**700**	**21**	**9**	**30**

Qualification Pack-HSS/Q3001- Vision Technician.

SEMESTER V									
C.No	**Course Code**	**Course Name**	**Credit**	**Marks**			**Hrs/wk**		
				Int	**Ext**	**Tot**	**T**	**P**	**Total**
5.1	GEC5NU13	Nutrition	4	20	80	100	4		4
5.2	SDC5GP17	Geriatric & Pediatric Optometry	4	20	80	100	4		4
5.3	SDC5CL18	Contact Lens	4	20	80	100	4		4
5.4	SDC5BV19	Binocular Vision	4	20	80	100	4		4
5.5	SDC5LV20	Low Vision Aid & Visual Rehabilitation	4	20	80	100	4		4
5.6	SDC5CLBV21 (P)	Contact Lens & Binocular Vision-Practical	6	20	80	100		6	6
5.7	SDC5LVGP22 (P)	Low Vision & Geriatric Pediatric Optometry –Practical	4	20	80	100		4	4
Semester III Total			**30**			**700**	**20**	**10**	**30**
SEMESTER VI									
C.No	**Course Code**	**Course Name**	**Credit**	**Marks**			**Hrs/wk**		
				Int	**Ext**	**Tot**	**T**	**P**	**Tot**
6.1	SDC6INT23 (Pr)	Major Internship (900 hrs.)	30	0	100	100		900	900
Semester VI Total			**30**			**100**			**900**
Grant Total			**180**			**3600**			

Qualification Pack-HSS/Q0401- Optometrist

SEMESTER-I

GEC1GA03 - General Anatomy & Physiology

Course No: 1.3

Course Code: GEC1GA03

Course Name: General Anatomy & Physiology

Credits: 4

Hours: 60

Unit: 1 (14 hrs)

GENERAL ANATOMY: Introduction to Human Anatomy: Anatomy: Definition and its relevance in medicine and optometry - Planes of the body, relationship of structures, organ system, Skeleton System Tissues of the Body: Epithelium, connective tissue, bone and cartilage, Embryology, histology, different types of each of them, types of cells, cellular differentiation and arrangements in different tissues Muscles: Different types of muscles, their functional differentiation, their relationship with different structures, and their neural supply Blood vessels: Differentiation between arteries and veins, embryology, histology of both arteries and veins, Functional differences between the two, anatomical differences at different locations

Unit: 2 (14 hrs)

SKIN AND APPENDAGES: Embryology, anatomical differences in different areas, functional and protective variations, innervations, relationship with muscles and nerves Lymphatic system: Embryology, functions, relationship with blood vessels and organs Glands: Embryology, different types of glands (exocrine and endocrine), functional differences, neural control of glands.

NERVOUS SYSTEM: Parts of Nervous system, cell types of nervous system, Blood-brain barrier, Reflex arc, Peripheral Nerves, Spinal nerves, Nerve fibers, Autonomic Nervous system Brain and Cranial nerves: Major parts of Brain, Protective coverings of the Brain, Cerebrospinal Fluid, Brain stem, Cerebellum, Diencephalon, Cerebrum, Cranial nerves

Unit: 3 (12 Hrs)

GENERAL PHYSIOLOGY-Cell structure & organization, Tissue organization, Epithelium Connective tissue – Collagen fibers – Elastic fibers – Areolar fibers Cartilage – Bone, Contractile tissue – striated – skeletal – cardiac – non striated – plain – myoepithelial - General principles of cell physiology, Physiology of skeletal muscle

BLOOD: Composition, Volume measurement & variations, Plasma proteins – classification & fonctions Red blood cells – development, morphology & measurements – functions & dysfunctions. White blood cells – development – classification, morphology – functions & dysfunctions Platelets – morphology – development, functions & dysfunctions, Clotting – factors – mechanism – anti- coagulants dysfunctions, Blood grouping – classification – importance in transfusion, Rh factor & incompatibility, Suspension stability

DIGESTION: General arrangement : Salivary digestion – functions & regulations, Gastric digestion – functions & regulations, Pancreatic digestion – functions & regulations, Intestinal digestion – functions & regulations, Liver & bile, Absorption, Motility, Deglutition, Vomiting, Defecation, Functions of large intestine, Neurohumoral regulations of alimentary functions, summary

Unit: 4 (10hrs)

EXCRETION: Body fluids – distribution, measurement & exchange, Kidney – structure of nephron – mechanism of urine formation – composition of the urine and abnormal constituents – urinary bladder & micturition

ENDOCRINES: Hormone mechanism – negative feed backs – tropic action – permissive action – cellular action, hypothalamic regulation Thyroid - hormones, actions, regulations Adrenal cortex - hormones, actions, regulations Adrenal medulla – hormones, actions, regulations Parathyroid - hormones, actions, regulations Islets of pancreas – hormones, actions, regulations Miscellaneous _ hormones, actions, regulations Common clinical disorders

Unit: 5 (10hrs)

REPRODUCTION: Male reproductive system – control & regulation , Female reproductive system – uterus – ovaries – menstrual cycle – regulation – pregnancy & delivery – breast – family planning

Respiration: Mechanics of respiration – pulmonary function tests – transport of respiratory gases- neural and chemical regulation of respiration – hypoxia, cyanosis, dyspnoea – asphyxia.

CIRCULATION: General principles Heart: myocardium – innervations – transmission of cardiac impulse- Events during cardiac cycle – cardiac output. Peripheral circulation: peripheral resistances – arterial blood pressure – measurements – factors regulation variations – capillary circulation – venous circulation. Special circulation: coronary cerebral – miscellaneous - Environmental Physiology, Body temperature regulation (including skin Physiology). Exposure to low and high atmospheric pressure

NERVOUS SYSTEM: Neuron – Conduction of impulse – synapse – receptor. Sensory organization – pathways and perception - Reflexes – cerebral cortex – functions. Thalamus – Basal ganglia, Cerebellum., Hypothalamus. - Autonomic nervous system – motor control of movements, posture and equilibrium – conditioned reflex, eye hand co-ordination, Special senses – (Elementary) Olfaction – Taste – Hearing

Texts Books:

1. B D Chaurasia: Handbook of general Anatomy, Third edition, CBS Publishers, New Delhi, 1996

2. GJ Tortora, B Derrickson: Principles of Anatomy and Physiology,11th edition,John Wiley & Sons Inc, 2007

3. John Wiley & Sons Inc, New Jersey, 2007

Reference Books:

1. AK Khurana, Indu Khurana: Anatomy and Physiology of Eye, Second edition,CBS Publishers, New Delhi, 2006

2. A C Guyton: Text book of Medical Physiology, 6th edition, saunders company, Japan, 1981.

SDC1PO01– Physical Optics

Course No: 1.4

Course Code: SDC1PO01

Course Name: Physical Optics

Credits: 4

Hours: 60

Unit:1 (8hrs)
Dual nature of light- Simple harmonic motion- differential; Simple harmonic waves-mathematical representation; Super position of simple harmonic waves.
Unit:2 (8hrs)
HUYGENS' Principle – Laws of reflection and refraction at plane and spherical surfaces. Wave velocity group velocity; determination of velocity of light (any one method.)
Unit:3 (12hrs)
Interference: Coherence; path and phase difference; Theory of interference fringes intensity distribution infringes; Young's double slit experiment- Fresnels' biprism, Lloyds' mirror experiments; visibility of fringes. Interference in thin films due to reflected and transmuted light- Interference in wedge Shaped films; Newton's ring experiment ; Color of thin films; Thin film antireflection coating and filters.
Unit4 (12hrs)
Diffraction: Diffraction by single slit; double slit, multiple slit- grating, circular aperture – amplitude & intensity distribution (final expressions only). Circular aperture- airy pattern, resolution by circular apertures. Diffraction grating- reflection, transmission, amplitude & phase gratings (definitions in brief) Grating dispersion & dispersive power, spectral resolution; zone plates.
Unit:5 (12hrs)
Polarization & Crystal Optics: Concept of polarization , linear , circular , elliptical polarization (qualitatively), Plane of polarization & vibration, degree of polarization, polarizes, analyzers, Production of polarized light, birefringence, calculate crystal , veal prism, Wallaston prism , retarders - full, half & quarter wave plates, analysis of light of unknown Polarization. Linear Scattering- Raleigh & Mce
Unit:6 (8 hrs)
Principles of LASERs, Holography – basic principle; simple experimental arrangement, some applications

Textbooks:
1. Subrahmanyan.N, BrijLal, *A textbook of Optics*, S.Chand.Co Ltd, New Delhi, India,2003.
2. Pedrotti L. S, Pedrotti Sr. F. L, *Optics and Vision*, Prentice Hall, New Jersey, USA, 1998.
3. **Reference Books:**
1. PedrottiL.S, PedrottiSr.F.L, *Optics and Vision*, Prentice Hall, New Jersey, USA, 1998.
2. Keating NM. P, *Geometric, Physical and Visual Optics*, Butterworth- Heinemann, Massachusetts, USA, 2002.
3. Loshin D. S. *The Geometric Optics Workbook*, Butterworth-Heinemann, Boston, USA, 1991.
4. Schwartz S. H. *Geometrical and Visual Optics: A Clinical Introduction*, McGraw-Hill,

New York, USA, 2002.
5.Tunnacliffe A. H, Hirst J. G, *Optics*, The association of British Dispensing Opticians, London, U.K., 1990.

SDC1MP02 – Microbiology & Pharmacology

Course No: 2.5

Course Code: SDC1MP02

Course Name: Microbiology & Pharmacology

Credits: 4

Hours: 60

Unit :1 (10 hrs)

Introduction to Microbiology; Types of Micro organism bacteria : cell structure, element idea about classification and morphological basis. Staining reaction: Gram staining, acid fast staining, Bacterial growth: nutritional requirements, Physical factors Effecting culture media and growth curve.

Sterilization and disinfection in the laboratory. Antibiotic: Bacteriostatic and bactericidal effects.

Unit:2 (14 hrs)

Micro Vs Humans,The development of infection, the disease process, Pathogenicity and virulence- Ocular Bacteriology- Gram Positive (Staphylococcus aureus,Staphylococcus epidermidis,Streptococcus Propionibacterium, actinomyceses,nocardia)Pneumococcus.Bactetria including acid fast bacilli (mycobacterium tuberculosis,mycobacterium leparae)

Unit:3 (12 hrs)

Ocular Bacteriology:- Gram negative Bacteria (Pseudomonas,Heamophilous,Brucella,neisseria,morazella) Spirochetes (Treponema,,Leptospiraccae)

Unit:4 (14 hrs)

Virology:- Classification of viruses in ocular disease, Rubella, Adenovirus, Oncogenic viruses(HPV, HBV, Retrovirus), HIV

Fungi-yeast, Filamentous, Dimorphic – intracellular parasites – Chlamydia,protozoa(taxoplasmosis,acanthamoeba),heliminthus(toxocariasis,filariasis,onchocerciasis,trematodes)

Unit:5 (10 hrs)

Various methods of administration of drugs in ophthalmology-topical drugs used for mydriatis / miotics-antibiotic-fortified drops-anesthetics-systemic drugs in glaucoma-miscellaneous drugs –lubricants-steroids

Text Book

1) BURTON G.R.W: Microbiology for the Health Sciences,3rd edition, J.P Lippincott Co.,St.Louis,1988

2) M J Pelczar (Jr),ECS Chan , NR Krieg:Microbiology,5th edition,TATA McGRAW-HILL Publisher,New Delhi,1993

3) KD TRITATHI-Essentials of Medical Pharmacology,7th edition,J P Brothers Medical Publishers (P)Ltd,2013

SDC1GA03 (P) – General Anatomy& Physiology- Practical

Course No: 1.6

Course Code: SDC1GA03 (P)

Course Name:General Anatomy & Physiology Practical

Credits: 5

Hours: 75

1. Identification of skull & skeleton (bones) [Skull-bones comprising, base of skull orbits]
2. Identification of organs & viscera
3. Identification of histological tissues.

a) Epithelial tissue-squamous, columnar, cuboidal

b) Connective tissue-skeletal muscle, cardiac muscle, smooth muscle

4. Identification of fixed histological slides – nerve tissues (cerebellum, cerebral cortex, neurons, spinal cord, nodes of Ranvier, corneal cell space), renal tissues, Blood vessels (artery & vein), Skin, Tongue, Liver.
5. Hemoglobin estimation
6. Determination of blood pressure

SDC1MP04 (P) –Microbiology & Pharmacology –Practical

Course No: 1.7

Course Code: SDC1MP04 (P)

Course Name: Microbiology & Pharmacology –Practical

Credits: 5

Hours: 75

1. Good microbiological laboratory practices
2. Sterilization and disinfectants
3. Slide Identification of bacteria's & pathogens.
4. Preparation of common stains used in microbiology & pathology (Eosin Haematoxylin Leishmann Stain etc.)-
5. Staining –Gram staining, Acid Fast staining
6. Preparations of culture media
7. Spread plate and pour plate
8. Preparing serial dilution
9. Antibiotic Sensitivity test by Kirby Bauer method

SEMESTER-II

GEC2OA06– Ocular Anatomy & Physiology

Course No: 2.3

Course Code: GEC2OA06

Course Name: Ocular Anatomy & Physiology.

Credits: 4

Hours: 60

Unit: 1 (12 hrs)
Anatomy: Cornea: Anatomy of all the layers, cellular structure, nerve supply, reason for transparency, refractive properties
Coats of eyeball: Sclera (episclera & sclera), Uvea (Iris, ciliary body, choroid), Retina Detailed anatomy, cellular structure, vasculature, nerve supply for all the above coats, pupils, nerve supply for pupillary actions, pupillary pathway. Crystalline lens, Aqueous, anterior chamber, vitreous body

Unit: 2 (8hrs)
Brief ocular Embryology,orbit Ocular Adnexa and Lacrimal system, Extra ocular muscles (anatomy, innervations, action) Orbital Blood supply

Unit: 3 (8 hrs)
Cranial Nerves: Study of each of the following nerves in terms of their nucluei , course, relationship within brain, effects of compression etc at different regions Optic nerve Oculomotor nerve Trochlear nerve Trigeminal nerve Abducent nerve Facial nerve Visual Pathway, Autonomic Innervations of Ocular structures

Unit: 4 (12 hrs)
Physiology: Protective mechanisms in the eye, Precorneal tear film, eyelids and lacrimation Extrinsic Ocular muscles, their actions and control of their movements Saccadic, smooth pursuit and Nystagmic eye movements Coats of the eye ball Corneal Physiology Aqueous humor and vitreous: Intra ocular pressure Iris and pupil

Unit: 5 (10hrs)
Crystalline lens and accommodation, Retinal structure and functions, dark and Light Adaptations

Unit: 6 (10hrs)
Anatomy of Extra Ocular Muscles.-Rectii and Obliques, LPS. Innervation & Blood Supply. Physiology of Ocular movements. Center of rotation, Axes of Fick. Action of individual muscle.Sherrington's law, Herring's law

Text Book:

1. AK Khurana, Indu Khurana: Anatomy and Physiology of Eye, Second edition, CBS Publishers, New Delhi, 2006

Reference Books:

1.A Remington: Clinical Anatomy of the Visual System, Second edition, Elsevier Butterworth Heinemann, Missouri, USA, 2005.

2. RD Ravindran: Physiology of the eye, Arvind eye hospitals, Pondicherry, 2001
3. PL Kaufman, A Alm: Adler's Physiology of the eye clinical application, 10th edition, Mosby, 2002

SDC2GO05– Geometrical Optics

Course No: 2.4

Course Code: SDC2GO5

Course Name: Geometrical Optics

Credits: 4

Hours: 60

Unit-1: (6hrs)
What is light- dual nature- particle & wave nature, speed, wave length & frequency of light.
Unit-2: (6hrs)
Fermats' principle- laws of relation & refraction at a plane surface using Fermats' principle.
Unit-3: (6hrs)
Snells' law, relative and absolute refractive indices, total internal reflection and Critical angle, refraction by plane parallel slab of glass; molecular basis of reflectively (basic index).
Unit-4: (6hrs)
Geometrical path length & optical path length of rays, Concept of wave fronts & rays, concept of divergence and convergence.
Unit-5: (8hrs)
Refraction by spherical surfaces- convex & concave, Derivation of vergence equation, focal points, deportee power, image point, lateral & axial magnification, simple numerical.
Unit-6: (8hrs)
Thin Lens- shapes, derivation of lens makers' formula, thin lens vergece equation, equivalent focal length of two thin lenses separated by a distance & placed in contact, lateral magnification of thin lenses in contact, simple numerical, concept of reduced systems.
Unit-7: (8hrs)
Thick Lens- Cardinal points & planes, front & back vertex power, matrix theory in paraxial Optics to locate positions of cardinal planes. Different types of aberrations & their effects.
Unit-8: (6 hrs)
Prism- Dispersion of prism, reflecting prisms, prisms diopters.
Unit-9: (6 hrs)
Geometrical theory of optical fibers. Uses of optical fibers.

Textbooks:
1. Subrahmanyan.N, BrijLal, A Textbook of Optics, S.Chand.Co Ltd, New Delhi, India,2003.
Reference Books:
2. Keating NM. P, Geometric, Physical and Visual Optics, Butterworth- Heinemann,

Massachusetts, USA, 2002.
3. Loshin D. S. The Geometric Optics Workbook, Butterworth-Heinemann, Boston, USA, 1991.
4. Schwartz S. H. Geometrical and Visual Optics: A Clinical Introduction, McGraw-Hill, New York, USA, 2002.

SDC2BC06– Biochemistry

Course No: 2.5

Course Code: SDC2BC06

Course Name: Biochemistry

Credits: 5

Hours: 75

Unit-1: (20hrs)
Carbohydrates: Glucose; fructose; galactose; lactose; sucrose; starch and glycogen (properties and tests, Structure and function), Proteins: Amino acids, peptides and proteins (general properties & tests with a few examples like glycine, tryptophan, glutathione, albumin, hemoglobin and collagen). Lipids: Fatty acids, saturated and unsaturated, cholesterol and triacylglycerol, phospholipids and plasma membrane

Unit-2: (20hrs)
Vitamins: General with emphasis on A, B2, C, E and inositol (requirements, assimilation and properties), Minerals: Na, K, Ca, P, Fe, Cu and Se. (requirements, availability and properties) Hormones:Hormones and their receptors basic concepts in metabolic regulation with examples, insulin, glucagon and thyroxin. Metabolism: General whole body metabolism (carbohydrates, proteins, lipids)

Unit-3: (20hrs)
Ocular Biochemistry: Various aspects of the eye, viz. tears, cornea, lens, aqueous, vitreous, retina and pigment epithelium rhodopsin. (The important chemicals in each and their roles).
Clinical Biochemistry: Blood sugar, urea, creatinine and Bilirubin, cholesterol etc. and significance of their estimation.

Textbook:
1. S. Ramakrishnan, Essentials of biochemistry and ocular biochemistry, Annamalai UniversityPublications, Chidambaram, India, 1992

Reference Book:
1. S. Ramakrishnan, KG Prasannan and R Rajan: Textbook of Medical Biochemistry, Orient Longman, Madras,1990.
2. D.R. Whikehart Biochemistry of the Eye, 2nd edition, Butterworth Heinemann, Pennsylvania,2003

SDC2OA07 (P) – Ocular Anatomy & Physiology-Practical

Course No: 2.6

Course Code: SDC2OA07 (P)

Course Name: Ocular Anatomy & Physiology-Practical

Credits: 5

Hours: 75

Identify the structure and explain its layers & functions/ significant;

1. Cornea
2. Conjunctiva
3. Sclera
4. Iris
5. Choroid
6. Crystalline lens
7. Retina
8. Optic Nerve
9. Rods and Cones
10. Visual Pathway- O.N, Optic Chiasma,Optic Tract, Lateral Geniculate Body, Optic Radiations

Identify the Adaptation system and explain;

1. Light Adaptation
2. Dark Adaptation

SDC2INT08 (Pr) – Internship/ Project

Course No: 2.7

Course Code: SDC2INT08 (Pr)

Course Name: Internship/ Project

Credits: 4

Hours: 60

A candidate has to undergo internship either in optometric/ophthalmological industries or hospitals such as, Govt. hospital / medical colleges/ private hospital/, which fulfill the norms decided by the University.
The major idea for internship is to implement the things learned and to get a real life experience.

Every student will be assigned an internal guide, allotted from the parent department concerned or an expert available in the college appointed by the principal or the head of the department. The student has to make regular discussions with the guide while choosing the subject/area and throughout the life time of the project.

SEMESTER-III

GEC3OD08 – Ocular Disease

Course No: 3.2

Course Code: GEC3OD08

Course Name: Ocular Disease

Credits: 4

Hours: 60

Unit:1 (5 hrs)
Disease of the Lids – Congenital Deformities of the Lids . Oedema of the Lids. Inflammatory Conditions of the Lids. Deformities of the Lid Margins. Deranged Movement of the Eyelids. Neoplasm's of the Lids. Injuries of the Lids.

Unit:2 (5 hrs)
Diseases of the Lacrimal Apparatus-. Dry Eye. Disease of the Lachrymal Gland. Disease of the Lachrymal Passages. Operations for Chronic Dacryocystitis.

Unit:3 (8 hrs)
Disease of the Conjunctiva- Subconjunctival Haemorrhage Infective Conjunctivitis. Follicular Conjunctivitis. Granulomatous Conjunctivitis. Allergic Conjunctivitis. Conjunctivitis Associated with Skin conditions. Degenerative conditions of the Conjunctiva. Vitamin- A Deficiency. Cysts and Tumours of the Conjunctiva. Conjunctival Pigmentation. Injuries of the Conjunctiva.

Unit:4 (7 hrs)
Disease of the Cornea –Congenital Anomalies. Inflammation of the Cornea (Keratitis). Superficial Keratitis. Deep Keratitis. Vascularisation of Cornea. Opacities of the Cornea. Keratoplasty. Corneal Degenerations. Corneal Dystrophy's. Corneal Pigmentation. Corneal Injuries. Refractive Corneal Surgery. Corneal Ulcer (Bacterial, Viral , Fungal)

Unit:5 (5 hrs)
Disease of the Sclera- Episcleritis. Scleritis. Staphyloma of the Sclera. Blue Sclerotic Scleromalacia Performs. Nanophthalmos. Injuries of the Sclera.

Unit:6 (5 hrs)
Disease of the Iris.-. Congenital Anomalies. Inflammations (Anterior Uveitis) . Specific Types of Iriodocyclitis . Degenerations of the Iris. Cysts and Tumours of the Iris. Injuries of the Iris.

Unit:7 (5 hrs)
Disease of the Ciliary Body- Inflammations of the Ciliary Body. Purulent Iriodocyclitis (Panophthalmitis) . Evisceration. Sympathetic Opthalmia. Vogt- Koyanagi – Harada Syndrome. Tumours of the Celery body. Injuries of the Celery body.

Unit:8 (7hrs)
Disease of the Lens- Congenital Malformations. Cataract . Congenital and Developmental Cataract . Senile Cataract. Traumatic Cataract. Complicated Cataract. Secondary Cataract. After Cataract. Dislocation of the Lens. SurgicalProcedures for Removal of the Lens (Operative Steps Only). Phacoemulsification (ICCE, ECCE, IOL). Small Incision Cataract Surgery (Manual Phaco).Intraocular Lens Implantation-AC+PC, IOL.

Unit:9 (5 hrs)
Retinal Artery Occlusion-CRAO,CRBO,Retinal Vein Occlusion-CRVO,BRVO,Hypertensive retinopathy,Diabetic Retinopathy,Retinopathy of

Prematuarity,,Retinitis Pigmentosa,Central serous Chorioretinopathy,Cystoid Macular Eodema,ARMD,,Retinal Detachment,Retinoblastoma

Unit:10 (8 hrs)

Glaucoma- .Formation of Aqueous Humor. Drainage of Aqueous. Intraocular Pressure(IOP) .Ocular Rigidity.Tonography. Developmental Glaucoma (Buphthalmos) . Primary Narrow Angle Glaucoma. Primary Open Angle Glaucoma. Normotensive Glaucoma . Ocular Hypertension . Secondary Glaucoma. Surgical Procedures for Glaucoma (Steps Only) ,YagPI ,trabeculectomy. Laser Procedure in Glaucoma . Artificial Drainage Devices in Glaucoma Surgery(Molteno).

Text Book

AK Khurana: Comprehensive Ophthalmology, sixth edition, JP Publishers, New Delhi, 2015

Reference Books

Jack j. Kanski: Clinical Ophthalmology,2003, Butterworths.

GEC3CR09– Clinical Refraction

Course No: 3.3

Course Code: GEC3CR09

Course Name: Clinical Refraction

Credits: 4

Hours: 60

Unit: 1 (12 hrs)

Review of Geometrical Optics

Conjugacy, object space and image space. Sign convention Spherical refracting surface, Spherical mirror; catoptric power, Cardinal points, Clinical Relevance of: Fluorescence, Interference, Diffraction, Polarization application, Spherical and Chromatic

Unit: 2 (12 hrs)

Optics of Ocular Structure

Cornea and aqueous Crystalline lens Vitreous Schematic and reduced eye

Unit: 3 (10 hrs)

Measurements of Optical Constants of The Eye, Corneal curvature and thickness Keratometry 3.3 Curvature of the lens and ophthalmophakometry, Angles and axes of the eye.

Unit: 4 (12 hrs)

Visual Acuity, Light and Dark Adaptation, Color Vision, Spatial and Temporal Resolution.

Unit: 5 (14hrs)

Refractive Anomalies and their Causes

Etiology of refractive anomalies, Optical component measurements, Growth of the eye in relation to refractive errors

Text books:

1. A K Khurana: Theory & Practice of Optics & Refraction, 4th Edition, Elsevier Publications, 2006.

Reference Books:

1. M P Keating: Geometric, Physical and Visual optics, 2nd edition, Butterworth-

Heinemann, USA, 2002

2. HL Rubin: Optics for clinicians, 2nd edition, Triad publishing company. Florida, 1974.
3. H Obstfeld: Optic in Vision- Foundations of visual optics & associated computations, 2nd edition, Butterworth, UK, 1982.
4. WJ Benjamin: Borish's clinical refraction,2nd edition, Butterworth Heinemann, Missouri, USA,2006
5. T Grosvenor: Primary Care Optometry,4th edition, Butterworth – heinneman,USA,2002.
6. A H Tunnacliffe: Visual optics, The Association of British Optician, 1987
7. AG Bennett & RB Rabbets: Clinical Visual optics, 3rd edition, Butterworth Heinemann, 1998.

SDC3PI09 – Pathology & Immunology (General & Ocular)

Course No: 3.4

Course Code: SDC3PI09

Course Name: Pathology & Immunology (General & Ocular)

Credits: 4

Hours: 60.

Unit:1 (10 hrs)
General Pathology: Principles, Pathology of cornea and conjunctiva, Pathology of eyelids and adnexa

Unit:2 (11 hrs)
Brief Pathology of Uvea, lens, glaucoma, Retina, retina in systemic disease / disorders, Retinoblastoma ,Optic nerve, Pathology of Orbital spaces occupying lesions

Unit:3 (12hrs)
Structure and function of immune system – structure and function of thymus, spleen and red bone narrow- immunity and its types, plasma protection and immune reaction, cell involved in immune system humoral immunity ,theories of antibodies formation

Unit:4 (8hrs)
Structure and function of lymph nodes. No specific immunity, antibody mediated immunity, specific immunity, cell modified immunity, Active immunity, Passive immunity.

Unit:5 (11hrs)
Source of infection: Transmission of organism to the body, wound infections. Wound healing. Immuno-pathogenesis – types I, II, III, IV hypersensitivity. Mechanism of auto immunity. Organ specific and no-organ specific auto immune disease. The HLA system histocompatibility complex.

.**Unit: 6 (8 hrs)**
Pyogenic and bacterial infection,Graft rejection basic outline.Disorder of growth – metaphase, dysplasia, neoplasia. Circulatory disturbances-thrombosis infraction, ischemia, embolism, degeneration (calcification).

Text Book:
1)KS Ratnagar: Pathology of the Eye & Orbit,JayPee brothers Medical Publishers,1997.
2) Thomas J Kindt,Richard A Goldsby,Barbara A Osborne:KUBY IMMUNOLOGY,6th Edition,W H Freeman & Company,2007

Reference :
1)CORTON KUMAR & ROBINS: Pathological Basis Of The Disease,7th Edition,Elsevier,New Delhi ,2004

SDC3OI10 – Ophthalmic Instrumentation & Procedure

Course No: 3.5

Course Code SDC3OI10

Course Name: Ophthalmic Instrumentation & Procedure

Credits: 4

Hours: 60

Unit-1 (15 hrs)
Trial Set and Trail frame,Standard Tests Charts, Retinoscopes-types and procedure. Telescopes and types. Simple and Compound Microscopes, Spectrometer.
Unit 2 (15 hrs)
Autorefractometer- subjective and objective types,
Opthalmoscopes- Direct and Indirect types.
Unit 3 (15 hrs)
Slit lamp Biomicroscope, Tonometer, Keratometer, Lensometer,Gonioscope
Unit 4: **(15 hrs)**
Synsaptophore,A scan,ERG,Perimetry,Corneal Topography.

Text Book:
1. AK Khurana: Theory & Practice of Optics & Refraction,4th Edition,Elsevier Publications,2006.
Reference:
1. Introduction to Visual Optics, Alan H. Tunacliffe(1987)
2. Clinical Optics- 2nd ed (1991)- A.R. Elington & H.J. Frank
3. Optics & Refraction-L.P. Agarwal.
4. Clinical Optics- Borrish.

SDC3PI11 (P) Pathology & Immunology –Practical

Course No: 3.6

Course Code: SDC3PI11 (P)

Course Name: Pathology & Immunology –Practical

Credits: 4

Hours: 60

1. Gram Staining of bacteria
2. Slide Identification of non virulent bacteria's & pathogens.
3. Preparation of common stains used in microbiology & Pathology (Eosin Haematoxylin Leishmann Stain etc.)- (Demonstration).
4. Determination of BT, CT, ESR
5. Measurement of TC of RBC & WBC & DC of WBC.
6. Determination of Blood Group (ABO; Rh).

SDC3OI12 (P) – Ophthalmic instrumentation-Practical

Course No: 3.7

Course Code: SDC3OI12 (P)

Course Name: Ophthalmic instrumentation-Practical

Credits: 6

Hours: 90

To study the operations of the following instruments: -

1. Focimeter or Lensometer.
2. Retinoscope.
3. Standard Test Charts.
4. Autorefractometer.
5. Slit Lamp Examination.
6. Keratometer.
7. Opthalmoscope.
8. Tonometer
9. A scan & B scan
10. HFA

SEMESTER-IV

GEC4ES11 – (EWM1B01) Environmental Science

Course No: 4.2

Course Code: GEC4ES11

Course Name: Environmental Science

Credits: 4

Hours: 60

Unit 1 (12 hrs)

Multidisciplinary nature of environmental studies, Definition, scope and importance, Need for public awareness.

Unit 2 (12 hrs)

Natural Resources: Renewable and non-renewable resources: Natural resources and associated problems. Forest resources: Use and over-exploitation, deforestation, case studies. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources.

Unit 3 (12 hrs)

Ecosystems: Concept of an ecosystem. Structure and function of an ecosystem. Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of Forest ecosystem , Grassland ecosystem Desert ecosystem Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4 (12 hrs)

Biodiversity and its conservation: Introduction – Definition: genetic, species and ecosystem diversity. Biogeographical classification of India Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values Biodiversity at global, National and local levels. India as a mega-diversity nation, Hot-sports of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India, Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit 5 (12 hrs)

Environmental Pollution: Definition, Cause, effects and control measures of various pollutions Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Social Issues and the environment. Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Environment Protection Act. Public awareness, Human Population and the Environment, Role of Information Technology in Environment and human health.

References:
R Rajagopalan, Environmental Studies
B. B. Singh, Objective Environmental Sciences

GEC4CO12–Community Optometry

Course No: 4.3

Course Code: GEC4CO12

Course Name: Community Optometry

Credits: 4

Hours: 60

Unit-1: (6 hrs)
Concept of public health.
Unit-2: (6 hrs)
Principles of primary, secondary and tertiary care.
Unit-3: (6 hrs)
Planning of health services.
Unit-4: (7 hrs)
Health economics
Unit-5: (10 hrs)
Health manpower development-a) Basic O.T Practices b) Familiarity with use of Operating Microscope
Unit-6: (7 hrs)
NPCB and refractive blindness – optometrist's role as primary health care provides.
Unit-7: (8 hrs)
Health care insurance including role of TPA.
Unit-8: (10 hrs)
Ocular emergencies –Foreign body, Eye Pain,Watering, Injuries-perforating, non perforating & chemical

Reference Books:
1.Mausne & Bahn: Epidemiology- An Introductory text, 2nd Ed
2.Community Health Nursing by K.Park, Latest Edition, Banarsidas
3.Basic Epidemiology by R.Beaglehole R.Bonita and T.Kjellstrom. Orient Longman WHO Geneva

SDC4VO13– Visual Optics

Course No: 4.4

Course Code: SDC4VO13

Course Name: Visual Optics

Credits: 4

Hours: 60

Unit:1 (14 hrs)
Refractive conditions,Emmetropia,Myopia,Hyperopia,Astigmatism,Presbyopia,Anisometropia Aniseikonia,Aphakia and Pseudophakia

Unit: 2 (14 hrs)
Accommodation Far and near points of accommodation ,Correction of spherical ametropia ,Axial versus refractive ametropia ,Relationship between accommodation and convergence, AC / A ratio.

Unit: 3 (10 hrs)
Objective refraction (Streak Retinoscopy only)

Unit: 4 (12 hrs)
Subjective Refraction -Review of subjective refractive methods ,Cross cylinder methods for astigmatism, Astigmatic Fan Test ,Difficulties in subjective and objective tests and their avoidance ,Ocular refraction versus spectacle refraction

Unit: 5 (10 hrs)
Subjective Refraction- Ocular accommodation versus spectacle accommodation ,Spectacle magnification and relative spectacle magnification ,Retinal image blur; depth of focus and depth of field ,Prescribing Prisms / Binocular Refraction

Text books:

1. 1. A K Khurana: Theory & Practice of Optics & Refraction,4th Edition,Elsevier Publications,2006.

Reference Books:

1. HL Rubin: Optics for clinicians, 2nd edition, Triad publishing company. Florida, 1974.
2. H Obstfeld: Optic in Vision- Foundations of visual optics & associated computations, 2nd edition, Butterworth, UK, 1982.
3. WJ Benjamin: Borish's clinical refraction,2nd edition, Butterworth Heinemann, Missouri, USA,2006
4. T Grosvenor: Primary Care Optometry,4th edition, Butterworth – heinneman,USA,2002.
5. A H Tunnacliffe: Visual optics, The Association of British Optician, 1987
6. AG Bennett & RB Rabbets: Clinical Visual optics, 3rd edition, Butterworth Heinemann, 1998.
7. M P Keating: Geometric, Physical and Visual optics, 2nd edition, Butterworth-Heinemann, USA, 2002

SDC4DO14–Dispensing Optics

Course No: 4.5

Course Code: SDC4DO14

Course Name: Dispensing Optics

Credits: 5

Hours: 75

UNIT-1 OPHTHALMIC LENS:

Unit-1.1 (4 hrs)

Characteristics of lenses: Introduction. Spherical lenses. Plano-cylindrical lenses. Sphero-cylindrical lenses. Designation of lens power. Power of lenses. Transposition. Write the prescription. Base curve of spherical lens. Base curve of cylindrical single vision lens. Aberration of lens. Prism prescription. Prism effects in a lens. Neutralization.

Unit-1.2. (4 hrs)

Spectacle lenses: Characteristics of lens materials. Specific gravity (weight). Refractive index. Abbe number. Impact resistance. Scratch resistance. Curve variation factor.

Unit-1.3 (4 hrs)

Current materials: Crownglass. CR-39. High –index glass. High –index plastic. Poly carbonate. Photochromatic materials.

Unit-1.4 (4 hrs)

Lens types: Single vision lens. Bi-focal lenses. Tri-focal lenses. Vocational & occupational multifocal progressive lenses.

Unit-1.5. (4 hrs)

Introduction of bi-focal lenses: History of bi-focal lenses. Modern bi-focal designs. Types of bi-focal designs. Glass tri-focal lensesPlastic bi-focals.

Unit-1.6. (4 hrs)

Opthalmic lens coating: Anti-reflecting coatings. Special notes concerning anti-reflecting coatings. Protective coating, color coating.

Unit-1.7. (4 hrs)

Absorptive lenses: Classification of lens tints. Chemical that produces color & assist in absorptive characteristics of glass lenses. Effect in prescription on lens color. Availability of tinted lenses.

Unit-1.8. (4 hrs)

Impact resistant lenses: Types of impact resistant lenses. Plastic lenses. Impact resistant Dress-Eye wear lenses. Tempered glass lenses. Types of impact resistant lenses most beneficial of specific patients.

Unit-1.9. (4 hrs)

Lens for special uses: Fresnel lenses. Thinlite lenses. Lenses for the Aphakic patient. Aspheric lenses.

Unit-1.10. (4 hrs)

Lens surfacing & quality. Principles of lens surface generation. Glass assessment. Faults in lens materials & lens surface. Inspection of lens quality.

UNIT-2. BASICS OF DISPENSING:

Unit-2.1. (4 hrs)

Spectacle frame. Current frame materials: Plastics, Metals Frame types: Combination of frames Half-eye frames, Mounts, Nylon-cord frame, Special purpose frames.

Unit-2.2. (3 hrs)

Frame measurements: The boxing system The datum system, Comparison of the two systems

Unit-2.3. (4 hrs)

Frame Selection: Fashion, Function, Feel, Conflicting needs, Price, Standard alignment,

Unit-2.4. (4 hrs)

Lens Selection: Ground rule for selection, Selection criteria

Unit-2.5. (4 hrs)

Facial Measurement: The PD Visual axes, measuring inter papillary distance, Using PD ruler, Common difficulties in measuring PDs, Measuring monocular PD, Measuring near PD, Progressive.

Unit-2.6. (4 hrs)

Pediatric Dispensing: The changing image of spectacle, Age differences. Frame Selection, Technical Criteria, Fashion criteria, Some tips on selection, Lens Selection, Technical criteria, Communicating with kids., The kids corner, Facial measurement of the kids, PDs, Centers, Bi-focals

Unit-2.7. (4 hrs)

Dealing with problems: Dealing with clients , Common client problems, Dealing with professional colleagues, Dealing with the laboratories

Unit-2.8. (4 hrs)

Special needs dispensing:, Occupational dispensing, Hazards in the work place, Occupational health safety legislation, Common hazards.

Unit-2.9. (4 hrs)

Eye protection: Industrial eye protection, Sport, Standards covering eye protection, Lens materials & impact resistance, Frame & eye protection.

TEXT BOOKS

1.M. Jailie : Principles of Ophthalmic Lenses, Edn. 3, 1994.
Clifford W Brooks & Irvin M Borish : System for Ophthalmic Dispensing
2.M.Jalie: Ophthalmic lenses and dispensing.

SDC4DO15 (P) –Dispensing Optics- Practical

Course No: 4.6

Course Code: SDC4DO15 (P)

Course Name: Dispensing Optics-Practical

Credits: 5

Hours: 75

1. Find out the meridian & optical center of ophthalmic lens
2. Neutralization – manual & help of lensometer
3. Identification of lens-spherical, cylindrical & sphero-cylindrical lenses
4. Lens-surfacing & edging, cutting & marking of single vision bifocal progressive
5. Frame measurement: The boxing system, the datum system. Comparison of the two systems, Lens position, segment specification
6. Frame selection: Fashion, function & standard alignment
7. Lens selection: Ground rule for selection, selection criteria.
8. Facial measurements: The PD & measuring inter-pupillary distance using P.D

ruler.

9. Common difficulties in measuring P.D, measuring monocular P.D, measuring HVID
10. Measuring heights: - single vision, bifocal, multifocal, progressive
11. Pediatric dispensing

SDC4INT16 (Pr)–Internship/Project

Course No: 4.7

Course Code: SDC4INT16 (Pr)

Course Name: Internship/Project

Credits: 4

Hours: 60

A candidate has to undergo internship either in optometric/ophthalmological industries or hospitals such as, Govt. hospital / medical colleges/ private hospital/, which fulfill the norms decided by the University. The major idea for internship is to implement the things learned and to get a real life experience.

Every student will be assigned an internal guide, allotted from the parent department concerned or an expert available in the college appointed by the principal or the head of the department. The student has to make regular discussions with the guide while choosing the subject/area and throughout the life time of the project.

SEMESTER-V

GEC5NU13–Nutrition

Course No: 5.1

Course Code: GEC5NU13

Course Name: Nutrition

Credits: 4

Hours: 60

Unit 1: (12 hrs)
Introduction to Nutrition and Food Science, Food Groups and Food Pyramid, Balanced diet for different age groups, recommended dietary Allowances, Assessment of Nutritional Status.
Unit 2: (12 hrs)
Energy– Units, Metabolisms, Energy expenditure, and Energy imbalance, Digestion, absorption and transport of Food,
Unit 3: (12 hrs)
Proteins and eye, Lipids and eye.Carbohydrates and eye, Vitamins and eye
Unit 4: (12 hrs)
Minerals and trace elements and eye, Caratenoids and eye, Oxidative stress and the eye
Unit 5: **(12 hrs)**
Vitamin A, C and E deficiency, Nutrition and ocular aging, Contraindications, Adverse reactions and ocular nutritional supplements.

Text Book
1. M Swaminathan: Handbook of Food and Nutrition, fifth edition, Bangalore printing& publishingCo.Ltd,Bangalore,2004
2. C Gopalan, BV Rama Sastri, SC Balasubramanian: Nutritive Value of Indian Foods, National Institute of Nutrition, ICMR, Hyderabad,2004
3. Frank Eperjesi&Stephen Beatty: Nutrition and the Eye: A practical Approach.

SDC5GP17– Geriatric & Pediatric Optometry

Course No: 5.2

Course Code: SDC5GP17

Course Name: Geriatric & Pediatric Optometry

Credits: 4

Hours: 60.

Unit: 1 (12 hrs)

GERIATRIC OPTOMETRY

Structural , and morphological changes of eye in elderly Physiological changes in eye in the course of aging. Introduction to geriatric medicine – epidemiology , need for optometry care, systemic diseases (Hypertension, Atherosclerosis, coronary heart disease, congestive Heart failure, Cerebrovascular disease, Diabetes, COPD) Optometric Examination of the Older Adult

Unit: 2 (12 hrs)

Ocular diseases common in old eye, with special reference to cataract, glaucoma, macular disorders, vascular diseases of the eye Contact lenses in elderly Pharmacological aspects of aging Low vision causes, management and rehabilitation in geriatrics. Spectacle dispensing in elderly – Considerations of spectacle lenses and frames

Unit: 3 (12 hrs)

PEDIATRIC OPTOMETRY

Pediatric optometry The Development of Eye and Vision History taking Paediatric subjects Assessment of visual acuity Normal appearance, pathology and structural anomalies of

a) Orbit, Eye lids, lacrimal system,

b) Conjunctiva, Cornea, Sclera Anterior chamber, Uveal tract, Pupil c) Lens, vitreous, Fundus Oculomotor system

Unit: 4 (12 hrs)

Refractive Examination Determining binocular status Determining sensory motor adaptability Compensatory treatment and remedial therapy for : Myopia, Pseudomyopia, Hyperopia, Astigmatism, Anisometropia, Amblyopia Remedial and Compensatory treatment of Strabismus and Nystagmus

Unit: 5 (12 hrs)

Paediatric eye disorders : Cataract, Retinopathy of Prematurity, Retinoblastoma, Neuromuscular conditions (myotonic dystrophy, mitochondrial cytopathy), and Genetics Anterior segment dysgenesis, Aniridia, Microphthalmos, Coloboma, Albinism Spectacle dispensing for children Paediatric contact lenses Low vision assessment in children

Text books :

.1.DE Rosenblatt, VS Natarajan: Primer on geriatric Care- A clinical approach to the older patient, Printers Castle, Cochin, 2002

2. A.J. ROSSENBLOOM Jr & M.W.MORGAN: Vision and Aging, Butterworth-Heinemann, Missouri, 2007

3. Pediatric Optometry - JEROME ROSNER, Butterworth, London 1982

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

References:

1. OP Sharma: Geriatric Care – A textbook of geriatrics and Gerontology, viva books, New Delhi, 2005

2. VS Natarajan: An update on Geriatrics, Sakthi Pathipagam, Chennai, 1998

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

5. Assessing Children's Vision. By Susan J Leat, Rosalyn H Shute, Carol A Westall.45 Oxford: Butterworth-Heinemann, 1999.

6. Clinical pediatric optometry. LJ Press, BD Moore, Butterworth- Heinemann, 1993

SDC5CL18– Contact Lens

Course No: 5.3

Course Code: SDC5CL18

Course Name: Contact Lens

Credits: 4

Hours: 60

Unit:1 (8 hrs)
Contact lens history & development. Benefits of contact lens over spectacle. Manufacturing methods-spin cast, Lethe cut, Cast modeling.
Unit:2 (8 hrs)
Slit lamp Examination technique,Corneal topography- Keratometry & Extended Keratometry
Unit:3 (6 hrs)
Contact lens optics-Contact lens & spectacle lens. Back vertex calculation. Contact lens & Tear lens system.
Unit:5 (6 hrs)
Classification of contact lens & its material (soft & RGP); Material property.
Unit:6 (6 hrs)
Contact lens terminology. RGP & soft lens design. FDA classification of contact lens material.
Unit:7 (6 hrs)
Patient selection & prescreening. Indications & contra indications of contact lens.
Unit:8 (6 hrs)
Soft spherical contact lens fitting & Assesment.
Unit:9 (4 hrs)
Soft contact lens case & maintenance.
Unit:10(6 hrs)
Spherical RGP contact lens fitting & assessment.
Unit-11 (4 hrs)
RGP contact lens care & maintenance.

Text Books
1. Monica Chaudhry:Contact Lens Primer,Jaypee Brothers Medical Publishers,2007
Reference:
1.IACLE modules 1 - 10
2.CLAO Volumes 1, 2, 3
3.Anthony J. Phillips : Contact Lenses, 5thedition, Butterworth-Heinemann, 2006
4.Elisabeth A. W. Millis: Medical Contact Lens Practice, Butterworth-Heinemann, 2004
5..E S. Bennett ,V A Henry :Clinical manual of Contact Lenses, 3rd edition, Lippincott Williams and Wilkins, 2008

SDC5BV19– Binocular Vision

Course No: 5.4

Course Code: SDC5BV19

Course Name: Binocular Vision

Credits: 4

Hours: 60

Unit: 1 (12 hrs)
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 (8 hrs)
Uniocular & Binocular movements - fixation, saccadic & pursuits. ,Version & Vergence.

Unit: 3 (6 hrs)
Neuro-muscular anomalies, Classification and etiological factors

Unit :4 (7 hrs)
Convergent strabismus -Accommodative convergent squint –Classification,Investigation and Management
Non accommodative Convergent squint,Classification ,Investigation and Management

Unit :5 (7 hrs)
Divergent Strabismus-Classification A& V phenomenon Investigation and Management.Vertical strabismus- Classification Investigation and Management

Unit:6 (7 hrs)
Paralytic Strabismus- Acquired and Congenital Clinical Characteristics Distinction from comitant and restrictive Squint Investigations –

Unit: 7 (6 hrs)
Clinical features of Restrictive Strabismus-Duane's Retraction syndrome,Brown's Superior oblique sheath syndrome,Strabismus fixus ,Congenital muscle fibrosis

Unit :8 (7 hrs)
History and symptoms ,Head Posture -Diplopia Charting ,Hess chart ,PBCT ,Nine directions,Surgical & Non Surgical Management of Squint

Text Books:
1.AK Khurana: Theory and Practice of Squint and Orthoptics,CBS Publishers,2017
2.AK Khurana: Comprehensive Ophthalmology, sixth edition, JP Publishers, New Delhi, 2015

Reference:
1.Pradeep Sharma: Strabismus simplified, New Delhi, First edition, 1999, Modern publishers.
3. Fiona J. Rowe: Clinical Orthoptics, second edition, 2004, Blackwell Science Ltd
4. Gunter K. Von Noorden: BURIAN- VON NOORDEN'S Binocular vision and ocular motility theory and management of strabismus, Missouri, Second edition, 1980, C. V. Mosby Company
5. Mitchell Scheiman; Bruce Wick: Clinical Management of Binocular Vision Heterophoric, Accommodative, and Eye Movement Disorders, 2008, Lippincot Williams & Wilkins publishers
6.AK Khurana, Indu Khurana: Anatomy and Physiology of Eye, Second edition, CBS Publishers, New Delhi, 2006

SDC5LV20– Low Vision Aid & Visual Rehabilitation

Course No: 5.5

Course Code: SDC5LV20

Course Name: Low Vision Aid & Visual Rehabilitation

Credits: 4

Hours: 60

Unit:1. (7 hrs)
Definition-old, new, proposed, b) Grades of low vision, c) Statistics/ Epidemiology d) Relation between disorder, impairment & handicapped,

Unit:2 (14 hrs)
Low vision optics: Magnification-relative distance/ relative size/ approach/angular Optics of Galilian & Keplarian telescope- advantage/disadvantage, significance of exit & entrance pupil. Optics of spectacle magnifier/ determination/ calculation/ disadvantage/advantage. Optics of stand magnifier, significance of equivalent viewing distance & calculations. Telescope- distance/ near/ telemicroscope/ monocular/ binocular/ bioptic. Determination of decentration of lenses /prism/calculation/Lebenson's formula/simple dioptric formula. Hand held magnifier-illuminated/ non-illuminated. Spectacle magnifier / half eye/ prism correction/ bar magnifier/ CCTV/ magni-cam/ low vision imaging system or V-max / contact lens & IOL telescope.

Unit:3. (12 hrs)
Low vision examination: Task/ Goal oriented history-medical/ visual/ psychological history/ task analysis/ mobility/distance vision/ near vision / daily living/ illumination/ work & school. Visual acuity measurement-distance/ near/ use of log MAR chart (distance & near)/ light house, picture chart/ visual field/ Amsler chart/ contrast sensitivity/ overview of glare testing. Low vision refraction.

Unit:4. (7 hrs)
Assessment & prescription of low vision devices-optical/ non-optical/ rehabilitation services. Non- optical devices-pen/umbrella/ boldline note book/ illumination/ letter writer/ environmental modification/ signature guide/ needle threader/ eccentric viewing strategies.

Unit:5 (7 hrs)
Overview of Rehabilitation Services:- definition/ implementation/ vocational guidance/educational guidance/ mobility & orientation training / special teacher/ special school/ Braille system/ integrated system/referral center- activity/ support/ loan.

Unit:6 (7 hrs)
Overview of systematic / retinal diseases in relation to low vision:- acromatopsia/ LMBB syndrome/ labers congenital anomaly/ down syndrome/ retinitis pigmentosa/ diabetic retinopathy/ optic atrophy/ albinism/ aniridia.

Unit:7. (6 hrs)
Counseling of low vision patient/ parents/ guardians/relatives.

Text Books:
1.Monica Chaudhry:Low Vision Aids,Jaypee Brothers Medical Publishers,2010

Reference:
2.The Art & Practice of Low Vision , By Freeman & Jose, Butterwort Pub.
3.Understanding Low Vision , AFB Publication
4.Low Vision, Fayea E.E.

SDC5CLBV21 (P) – Contact Lens & Binocular Vision-Practical

Course No: 5.6

Course Code: SDC5CLBV21 (P)

Course Name: Contact Lens & Binocular Vision-Practical

Credits: 6

Hours: 90

Contact Lens

a) Routine clinical procedure for contact lens patient & selection of contact lens.
b) Keratometry & slit lamp Biomicroscopy.
c) Spherical soft & Spherical RGP contact lens fitting: selection of contact lens Base curve, diameter & Power & fitting Assessment.
d) Insertion & Removal of soft & RGP contact lens.
e) Contact lens & maintenance.

Binocular Vision

a) Exta ocular Motility
b)Cover tests-Alternate & Cover un cover test
c) Krimsky Test
d) Maddox Rod Test
e) Prism Bar cover test
f) Maddox wing test
g) W4DT
h) Bagolini striated glasses
i) Random dot test
j) TNO test
k) Lang's sterio test

SDC5LVGP22 (P) – Low Vision & Geriatric Pediatric Optometry -Practical

Course No: 5.7

Course Code: SDC5LVGP22 (P)

Course Name: Low Vision & Geriatric Pediatric Optometry -Practical

Credits: 4

Hours: 60

a) Attending in low vision care clinic And history taking
b) Inducing the visual impairment and prescribing magnification
c) Determining reading speed with different types of low vision aids with same magnification
d) Determining reading speed with a low vision aid of different magnification.
e) Understand Amsler chart and uses
f) TBUT test
g) Schirmer's test

SEMESTER-VI

SDC6INT23 (Pr) Major Internship

Course No: 6.1

Course Code: SDC6INT23 (Pr)

Course Name: Major Internship

Credits:30

Hours: 900

The idea for internship is to implement the things learned and to get a real life experience. Short-term working experience in optometric and ophthalmologic companies/ hospitals will help students to get direct hands-on experience. Also, it helps students to get better understanding on the advancement of optometry and ophthalmologic techniques, and to build a strong network with experts and fellows in the optometric and ophthalmologic field, which can positively contribute to future career development.

The Evaluation process of major internship follows 100% external assessment. The major internship should be carried out either in optometric/ophthalmological industries or hospitals such as, Govt. district hospital/ Medical colleges/ Super specialty eye hospitals/ private hospitals, which fulfill the norms decided by the University. The internee shall be entrusted with optometry responsibilities under direct supervision of Senior Optometrist/ ophthalmologist. They shall not be working independently.