SHIVAJI UNIVERSITY KOLHAPUR

Graphic Design

Syllabus

For

B. Voc. Part - II

Advance Diploma in Graphic Design

To be implemented from Academic Year 2015-2016 onwards

BACHELOR OF VOCATION (B.Voc.)

STRUCTURE OF SYLLABUS:

To be implemented from the academic year 2015-2016

1. Title of the course: Advance Diploma in Graphic Design

A. INTRODUCTION

Graphic design is the creative planning and execution of visual communication. One learns to create a combination of shapes and forms, words and images, in order to reproduce them in some flat medium (two dimensional - paper, cardboard, cloth, plastic, video, computer, or projection screen, on poster, billboard, or other signage) or in a three-dimensional form (fabricated or manufactured) in order to convey information to a targeted audience. All graphic design has a purpose or function. Usually its purpose is commercial to explain aesthetically something -- to express, inform, and influence the thoughts and actions of its audience.

This subject introduces the student to art intended to communicate information and advertising. The focus is on studying and using layout and design concepts used in the graphic design field. The students will employ both analog media (drawing with pencil and paper, etc.) and digital media -- using up-to-date computer tools (graphics hardware and software - for drawing, painting, layout, typography, scanning, editing and photography).

1. **Creating Art:** Students know and apply the arts, disciplines, techniques and processes to communicate in original or interpretive work.

2. **Art in Context:** Students demonstrate how elements of time and place influence the visual characteristics, content, purpose and message of works of art.

3. **Art as Inquiry:** Students demonstrate how the arts reveal universal concepts and themes. Students reflect upon and assess the characteristics and merits of their work and the work of others.

B. RATIONALE

Design is the process of selection where visual elements such as point, line, shape, volume, tone, texture, color, form, format, space, and structure are used by students to express their ideas. Visual sensitivity and working knowledge of design elements would be developed by solving a series of problems and employing a variety of media and materials. The curricular area aims at enabling the students to develop their mental faculties of observation, imagination, and creation and develop skills and sensitivity towards the use of visual elements for an effective visual communication.

Design is an activity of problem solving for the well being of society and individuals. Today, in the world of information and communication every one has to communicate and get

communicated by different groups of people through a wide variety of communication systems.

Graphic designs course have great potential in providing creative solutions to communication of complex phenomena of print media such as books, magazines and newspaper, known as pictographic depictions or concept visualization. It can be traditionally applied in typography, cartooning (social, political and educational), and designing poster, book-covers, letter heads, news papers, brochure, logo, textile prints, or even jewelries. Since the advent of personal computers and design software, graphic design is being utilized in electronic media-often referred to as interactive design which has unlimited applications in advertisements. The students can later become graphic designers working in print production (newsletters, posters, brochures, etc). Graphic designers combine text and images to communicate a message: sell a product or service, inform, or entertain.

The Graphic Design curriculum focuses on creating intelligent and powerful visual communication. Students build a strong foundation for a graphic design career by learning design techniques, visual thinking, concept development, colour, composition, and typography, through case studies and hands-on exercises. During the study, assignments will incorporate problem solving projects that relate to visual communication. The course includes introduction to computer as a tool to create, modify and present the visual messages.

C. COURSE OBJECTIVES

By studying Graphic Design students will have a wider horizon in the field of art and will

- Demonstrate artistic growth by executing a variety of images/ text as images, traditional and contemporary techniques that solve complex design problems using creative thinking and analytical skills.
- Develop and demonstrate their understanding and skillful use of the elements and principles of visual design (*1. conceptual element, 2. visual element, 3. relational element & 4. practical or functional element.)*
- Gain skill to use the digital tools as a powerful means of communication for creation, modification & presentation.
- Study the works of contemporary artists, designers as well as the masters in the field and discuss and enrich their vocabulary of design.
- Learn ways to apply aesthetic sensibilities into their works and explore ways to balance between formal theories with practical applications.

D. CORE CONTENT GOALS FOR GRAPHIC DESIGN

The students will learn:
- The history of graphic design.
- What a layout is and how to create an effective one.
- About lettering/fonts and their implications.
- What a logo is and how to create one.
- The basics of two dimensional design including the elements and principles of art.
- About color theory and its implications in Graphic Design.
- How to use art criticism effectively.

- About Graphic Design as a career.
- To improve their design skills and techniques using a variety of tools.
- To learn pre and post production techniques.

In this class, students will design and create a variety of projects, both by hand and by using computer graphic design programs. They will maintain good studio organization and use of tools as expected by the teacher. They are expected to maintain facilities in an appropriate working condition.

2. Duration:

The duration of the B.Voc. Course will be of **three years.**

▪ B.Voc. Part I - Diploma in Graphic Design

▪ **B.Voc. Part II - Advanced Diploma in Graphic Design**

▪ B.Voc. Part III - Bachelor of Vocation in Graphic Design

The final B.Voc degree will be awarded only after completion of three year course.The suggested credits for each of the years are as follows:

Awards		Normal calendar duration	Skill Component Credits	General Education Credits
Year 1	Diploma in Graphic Design	Two Semesters	36	24
Year 2	**Advanced Diploma in Graphic Design**	**Four Semesters**	**36**	**24**
Year 3	B.Voc in Graphic Design	Six Semesters	36	24
	TOTAL		**108**	**72**

General Education Component should not exceed 40% of the total curriculum.

Credits can be defined as the workload of a student in
1. Lectures
2. Practicals
3. Seminars
4. Private work in the Library/home
5. Examination
6. Other assessment activities.

The following formula should be used for conversion of time into credit hours.

a) One Credit would mean equivalent of 15 periods of 60 minutes each, for theory, workshops /labs and tutorials;

b) For internship/field work, the credit weightage for equivalent hours shall be 50% of that for lectures/workshops;

c) For self-learning, based on e-content or otherwise, the credit weightage for equivalent hours of study should be 50% or less of that for lectures/workshops.

3. Eligibility:

The candidates having B.Voc. Part I Diploma in Garphic Design / Community College Diploma in Graphic Art are eligible for admission to B.Voc. part II advanced diploma programme.

4. Medium of Instruction:

The medium of instruction of the course will be **Marathi / English**

5. Pattern: Credit based Semester Pattern.

6. Examination:

A. Scheme of examination:

• The semester examination will be conducted at the end of each term (both theory and practical examination)
• Theory paper will be of 50 marks each. The practical examination will be of 200 marks and industrial practical training/project work is of 50 marks.
• Question papers will be set in the view of the entire syllabus and preferably covering each unit of the syllabus.

For each semester there will be **four** theory papers. **Practical Examination will be conducted at the end of every semester.**

For Semester II

Paper Number	Title of Paper	Total Marks	Credits
I	Fundamentals of Financial Accounting-I	50	3
II	Advertising Art (Part - I)	50	3
III	Calligraphy	50	3
IV	Printing Technology (Part - I)	50	3
	TOTAL	200	12

For Semester II

Paper Number	Title of Paper	Total Marks	Credits
I	Fundamentals of Financial Accounting-II	50	3
II	Advertising Art (Part - II)	50	3
III	Packaging Design	50	3
IV	Printing Technology (Part - II)	50	3
	TOTAL	200	12

The practical examination will be of 200 marks.

Sr. No.	Practical examination	Marks	Internal Assessment	Marks
1	Practical	180	Projects/ Industry Visit	50
2	Portfolio	20		
	Total	200		50

The total weightage of first term is of 450 marks, the details of which are-

Sr. No.	Title	Marks	Credits
1	Theory Examination 50 X 4	200	12
2	Practical Examination.	200	12
3	Internal Assessment	50	6
	TOTAL	**450**	**30**

B. Nature of question paper:

For the **papers II, III and IV** there will be in all **SEVEN** questions in each paper of which any **FIVE** should be solved. All questions will carry equal marks i.e. each question will be of 10 marks.

General nature of the question paper will be:

Question Number	Type	
Q.1	Short answer	Any two out of three
Q.2,3,4,5,6	Long answer	No internal options.
Q.7	Short notes	Any two out of three

C. Standard of Passing:

To pass the examination a candidate must obtain at least 35% (i.e 18 marks out of 50) in individual subjects, in internal assessment and University examination each in all theory and practical subjects.

D. External Students: Not applicable as this is a practical oriented course**.**

7. University Term: As per academic calendar of the university.

For the Second year i.e. Advance Diploma in Graphic Design practical examination and theory paper assessment will be done at college level.

8. List of equipment and instruments:

1. Computer Machines
2. Colour Printer
3. Scanner
4. Digital Camera
5. Projector
6. Internet Connectivity

7. CCTV Camera for Graphic Design Laboratory is must.

9. Laboratory Safety Equipments:

Part I: Personal Precautions:

1. Must wear **Lab Aprons / Lab Jacket** and proper shoes.
2. Except in emergency, over – hurried activities is forbidden.
3. Eating, Drinking and Smoking in the laboratories is strictly forbidden.

Part II: Use of Safety and Emergency Equipments:

1. First aid Kits
2. Fire extinguishers (dry chemical and carbon dioxide extinguishers)
3. Management of Local exhaust systems.
4. Sign in register if using instruments.

10. Workload:

Each skill based paper (i.e. Paper no. II, III and IV) will have **four theory** periods per week. There are **four practical** per week. Each practical will be of four periods. The practical batch will have maximum 20 students.

The total workload for one batch will be:

1. **One Paper** on General Education: =   06 Theory Periods.
2. **Three Papers** on skill based Education: 3 X 4   =   12 Theory Periods.
3. **Four Practical** work per week: 4 X 4   =   16 Practical periods.
4. **Project Work** per batch per week: =   02 Periods

                                          TOTAL   36 Periods.

Working hours will be 5 hours (300 minutes) per day i.e. six periods each of 50 minutes.

13. MEMORANDUM OF UNDERSTANDING (MOU):

The purpose of this MOU is to clearly identify the roles and responsibilities of each party (i.e. college and industry partner) as they relate to the implementation of the **B.Voc. Programme in Graphic Design** at the college.

It is recommended to sign at least **TWO MOU** with the industry partners in the related field.

B.Voc. Part - II (Advanced Diploma in Graphic Design)
Course structure

General Structure:

The advanced diploma course has two semesters; each one is of 450 marks. There will be four theory papers for each semester having 50 marks each.

SEMESTER – I

1) Paper-I: Fundamentals of Financial Accounting-I	- 50 Marks.
2) Paper-II: Advertising Art (Part - I)	- 50 Marks.
3) Paper-III: Calligraphy	- 50 Marks.
4) Paper-IV: Printing Technology (Part - I)	- 50 Marks.

SEMESTER – II

1) Paper-VI: Fundamentals of Financial Accounting-II	- 50 Marks.
2) Paper-VII: Advertising Art (Part - II)	- 50 Marks.
3) Paper-VIII: Packaging Design	- 50 Marks.
4) Paper-IX: Printing Technology (Part - II)	- 50 Marks.

There will be practical examination for each semester. The practical examination will be conducted in **two days** each of six hours. It will be of 200 marks. The internal assessment of 50 marks includes industry training via internships, handling live projects, visits to Graphic Design units etc.

SYLLABUS

N. B.

(i) Figures shown in bracket indicate the total lectures required for the respective units.

(ii) The question paper should cover the entire syllabus. Marks allotted to questions should be in proportion to the lectures allotted to respective to units.

(iii) All units should be dealt with S.I. units.

(iv) Project / Industrial visit per semester is compulsory.

(v) Use of recent editions of reference books is essential.

(vi) Use of Output Devise allowed.

ADVANCE DIPLOMA IN GRAPHIC DESIGN

SEMESTER III

GENERAL EDUCATION:

Paper I: FUNDAMENTALS OF FINANCIAL ACCOUNTING-I

Work Load - 6	Total Marks – 50
Theory – 4 Lectures / Week	Theory- 40
Practical- 2 Lectures / Week	Practical- 10

Objective　　: To impart basic accounting knowledge as applicable to business.

Course contents:

Unit I : **Introduction to Accounting**
　　　　Meaning, Nature and Advantages of Accounting, Branches of Accounting, Accounting Concepts and Conventions, Types of Accounts, Rules of journalizing, Source Documents – Cash Voucher, Petty Cash Voucher, Cash Memo – Receipts, Debit Notes, Credit Note, Paying Slips, Withdrawals, Cheque

Unit II : **Journal and Ledger**
　　　　Preparation of Journal entries and Ledger accounts – Subsidiary Books - Purchase Book, Purchase Return Book, Sales Book, Sales Return Book, Cash Book, Bills Receivable Book, Bills Payable Book, Journal Proper

Unit III : **Depreciation**
　　　　Meaning, Methods – Straight Line Method – Reducing Balance Method, Change in Depreciation Method.

Unit IV: **Final Accounts**
　　　　Preparation of Trial Balance, Preparation of Final Accounts of Sole Traders and
　　　　partnership firms

Practical:

1) Preparation of Journal entries and Ledger accounts
2) Preparation of subsidiary books
3) Preparation of Trial Balance
4) Practical problems on Final Accounts of sole traders and partnership firms
5) Practical problems on methods of depreciation

Scheme of Internal Practical Evaluation	**10 Marks**
1)　　Submission of Record Book	5 Marks
2)　　Viva – Voce	5 Marks

References:

1) Advanced Accountancy – M.C. Shukla and T.S. Garewal.
2) Advanced Accountancy – S.C. Jain and K. L. Narang
3) Advanced Accountancy – S.M. Shukla.
4) Advanced Accountancy – S. N. Maheshwari.

5) Advanced Accountancy – R. L. Gupta.

SKILL BASED PAPERS:

Paper II-Advertising Art (Part-I)

Unit-I:
Introduction to advertising – defining advertising, Schematic history of advertising. Concepts of advertising: Propaganda, publicity and Public relations. Consumer advertising, trade advertising, public relations advertising. Roles of Advertising, Functions of Advertising.

Unit-II:
Main trends in advertising. Strategy, Period, Focus and Themes. Rational vs. non-rational: Evolution of strategies. Introduction to newspapers and magazine advertising. Strategy of repetition, use of text and patterns, typography and the creation of slogans.

Unit-III:
The Advertiser, The advertising agency & type of agencies, The media vendors, The target audience, The industrial revolution and emergence of consumer society.

Unit-IV:
Advertising and society- Advertising business offers employment, Advertising promotes freedom of press, Information and freedom of choice, Advertising creates demand and consequently sales, Advertising reduces selling cost, Advertising creates employment, Advertising establishes reputation and prestige, Truth in advertising, Advertising tries to raise the standard of living.

Unit-V:
Ethics, regulation and social responsibilities taste and advertising, Stereo typing in advertising, Advertising to children, Advertising controversial products.

Books:
1. Advertising Art and Ideas – Mr. Rege
2. Jahiratiche Jag (Marathi) – Shobha Bhagwat
3. Charles J. Driksen and other- Advertising principles, problems and cases
4. David A. Aker and John G. Myers- Advertising Management
5. B .s. Rathor-Advertising management

Paper III- Calligraphy

Unit I: Basics of Art in Calligraphy

1. Elements of Art in Calligraphy: (i) Line (ii) Form (iii) Colour (iv) Texture (v) Pattern
2. Principles of Art in Calligraphy: (i) Proportion (ii) Balance (iii) Rhythm (iv) Emphasis
(v) Harmony Details:
(i) Proportion- The proportion of alphabets
(ii) Balance- Symmetrical, Asymmetrical & Radial Balance in Calligraphy
(iii) Rhythm- Rhythm in Calligraphy

(iv) Emphasis- Creation of Focal Point
(v) Harmony- Harmony between principles & elements

Unit II:

Study the art, symbolic expression, history and importance of calligraphy. Study the calligraphic work of Egyptian Art, Islamic Art, Chinese, Japanese and Miniature Paintings etc. Practice the calligraphy in ink and colour with pen, bamboo and brush in different types like English, Sanskrit, Malayalam, and Devanagiri etc. Make useful designs and objects with calligraphy. Try to think, how to use this ancient art form in contemporary useful art forms. Make simple designs with the help of different types.

Unit III: Computer Graphics (Theory)

(i) Graphic Design for Calligraphers
(ii) Letters as Subject: Written, Drawn & Painted
(iii) The Joy of Calligraphy: Developing a Personal Script

Unit IV: Professional Calligraphy:

(i) Lettering (ii) Logos (iii) Illustration (iv) Communication Design (Banners, Posters, Backdrops etc) (v) Illumination (vi) ICT in Graphic Design

Paper IV-Printing Technology (Part - I)

Unit I:
History and developments of printing – Printing methods- conventional and nonconventional methods - Introduction to printing Industry – size and scope of printing Industry, organizing printing service, preparation for career in printing. Printing industry in India – Printers measurement system. Alphabet design, Type face classification .Basic steps involved in planning a layout, factors to be considered while planning a layout Assembly & masking materials, positive & -ve film assembly, planning of multicolor work, punch & drill registration system, step & repeat work, imposition consideration for sheet fed & web fed press.

Unit II:
Color & color theory – Additive & subtractive -Terms to describe color, - color separation technique Direct & indirect method – GATF color triangles & color circle their use – modern color spaces -color matching – color original - color originals, selection and their characteristics – method of color measurement– color Gamut.Prepress color proofing-DDCP- inkjet-thermal wax – chromalin proofing- factors in proofing- substrate- color of ink-solid ink density- trapping tone reproduction proofing methods- soft proof- digital proof-photomechanical proof- press proof- other proofing methods.

Unit III:
Offset Machinery: Offset process-principle, advantages, and limitations. Various press configurations.

References:
1. Eric Chambers, reproduction photography for lithography, GATF.
2. J.W.Burden, Graphic, Reproduction photography, Focal Press, London
3. Hand book of Modern halftone photography, perfect graphic arts, USA
4. Jack Eggleston, Sensitometry for photographers, focal Press, London
5. Woddiff Thomas , J R.SPSE handbook of photographic science and engineering, John Wiley & Son
6. J.Michael ADAMS, David D Faux, Lloyd, J.Reiber, Printing Technology, 3E, Delma Publishing
7. PIRA, guide standardized lithographic colour printing
8. Mills southworth, colour separation technique, Graphical arts publishing
9. R.W.G. Hunt, reproduction of colour, Fountain Press
10. Principles of cold Reproduction applied to photomechanical reproduction, colour photography and the ink, paper and other related industries, John Wiley & Sons U.K.
11. Graphic Repro, Eaglehead Publishing Ltd. U.K.
12. Dr. R.K. Molla, Electronic colour separation, R.K. printing & Publishing company,USA.
13. Manual for Lithographic Press Operation- A S Porter
14. Lithographic Technology –Edwin A Dennis, Olusegan Odesina
15. Introduction to Printing Technology-Hugh M Speirs
16. Sheetfed Press Opertaion-GATF
17. Offset Technology-C S. Mishra.

B) Practical

A) Software Skill Development	**1) Advance Photoshop**	**50 Hrs.**
	2) Shree Lipi	**50 Hrs.**

B) Designing Skill Development   **100 Hrs.**

1) **Layout**
2) **Flyer – one fold, 2 fold, Brochure**
3) **Poster**
4) **Label**
5) **Advance Image Editing**
6) **Effects, Photoshop, Plugins**
7) **Brochure Artwork**
8) **T Shirt Designing**

C) Project Work   **50 Hrs.**

1) **Collecting References**
2) **Brochures**
3) **Lables**

SEMESTER IV

Paper I-FUNDAMENTALS OF FIANACIAL ACCOUNTING- II

Work Load - 6   Total Marks – 50

Theory – 4 Lectures / Week   Theory- 40
Practical- 2 Lectures / Week   Practical- 10

Objectives: To impact basic accounting knowledge as applicable to business.

Course contents:

Unit I   **Computerized Accounting System**
Introduction – Concept – Components –Features - Importance and Utilization of Computerized Accounting System.

Unit II   **Computer Application through Accounting Package Tally**
Creation of Company, Group, Ledger Accounts, Feeding of Accounting Data Receipts, Payments, Purchase, Sale, Contra, Journal, Credit Note and Debit NoteInventory Information – Groups, Items and Valuation.
Generation of various Accounting Reports.

Unit III   **Accounts of Professionals**
Preparation of Receipts and Payment Account – Income and Expenditure Account and Balance Sheets of Non Profit Organization.

Unit IV   **Single Entry System**
Conversion of Single Entry System into Double Entry System.

Practical:

1. Understanding computerized accounting practices applied in different retail malls in and around Kolhapur city
2. Practical problems based on computerized accounting using Tally
3. Practical problems on preparation of Receipts and Payment Account
4. Preparation of Income and Expenditure account and Balance Sheet of Non-profit making organizations
5. Solving the problems on conversion of Single Entry system into Double entry system.
6. Oral / Seminar

References:
1. Advanced Accountancy, M. C. Shukla and T. S. Garewal.
2. Advanced Accountancy, S.C. Jain and K. L. Narang.
3. Advanced Accountancy, S.N. Maheshwari.
4. Theory and practice of Computer Accounting, Rajan Chougule and Dhaval Chougule.

Web sites:
1)   www.nos.org
2)   www.wiki.answers.com
3)   Chow.com

Scheme of External Practical Examination   10 marks
1)   Submission of Record book   5 marks
2)   Viva – Voce   5 marks

Paper II-Advertising Art (Part-II)

Unit-I:
Advertising and marketing – marketing plan, Advertising role in marketing: Types of market, Approaching market, The marketing concept and relationship marketing, Channel of distribution, Pricing.

Unit-II:
Campaign planning objectives and basic principles, Campaign objectives, Factors influencing the planning of advertising campaign, The selling methods, Campaigning a new product, Layout design principles.

Unit-III:
Creative side of the advertising – what is creative advertising, Creative leap, Creative concept, Strategy and creativity, Creativity and strategy in the message design, Creative thinking.

Unit-IV:
Level aspects of advertising – copyright, Trade mark, Consequences of advertising, Status of advertising agents – outdoor advertising, advertisements in newspapers and magazine, cinematography – radio and television advertising.

Unit-VI:

Art direction, Product category strategies, Creative brief, Decision about the message exestuation, Grating print advertising, Newspaper advertisement, Magazine advertisements

Unit-VII:

Biography- add guru-Prasoon Joshi, Prahlad Kakkar.
: -creative guru-Rekha nigam.
: -photographer-Praveen Bhat, Leena kejriwal, Amit Madheshiya.

Paper III - Packaging Design

Packaging designers need to develop marketable ideas and translate design concepts into three-dimensional packages of all shapes and sizes. Packaging Design will introduce students to materials and processes related to forms for packaging. Through understanding the characteristics of various packing materials and researching and analyzing the qualities of the product and the consumer needs and other factors, students will produce various solutions that can attract and sell. An important part of the class will revolve around individual student critiques and detailed comments and recommendations for developing the required project materials. Students will develop extensive projects and elaborate several different design solutions for them, including detailed thumbnail drawings, marker renderings, structures, graphic design and final packaging.

There are five basic packaging materials: paper, plastic, glass, metal and wood (pallets). A sixth is composites, where the package is made from a combination of several materials. For example, paper and plastic (polycoat) milk cartons or aseptic packaging (juice boxes made from paper, plastic and aluminum). There is a wide range of packaging types even within the one grouping. Paper-based packaging, for example, includes not only the major packaging grades of containerboard, boxboard and kraft paper packaging, but also envelopes and labels and tags, things we don't normally consider as packaging.

Unit I

Plastic – one of the most common packaging materials used for food products. Resin is most common to plastic packaging as it can be made flexible or rigid depending on the need of packaging. This is commonly used for sodas, milk carton and egg trays. Rigid plastics are usually used for manufacturing food cartons (for to go) and other plastic trays.

Unil II

Metal or Aluminum – this type of packaging is normally used for canned goods, sodas and alcoholic drinks like beer. Although aluminum is good for packaging, challenge is it is quite expensive to make one that is why you would hear people trying to get all the used cans that they can find so that they can have it for recycling.

Unit III

Cardboard – this is used when the product is already wrapped in something that is already well protected and secured. This material is also highly recyclable. This material is also used in manufacturing corrugated boxes. Some products use bubble wrap for protective purposes before putting it in a well-sealed box. Taping machines are commonly used for sealing these corrugated boxes just to make sure that product is delivered in tact.

Unit IV

Glass – is frequently used for preserved foods such as jams and honey. This type of packaging is easy to use and can be recycled over and over again. Glass is also used for consumable goods such as sodas, beer and wine. Although this packaging is fragile, it is still widely used across almost all industries.

Unit V

Foam – you would notice this type of packaging on gadgets, TVs, furniture, glass and anything with sharp edges. Foams are custom made to make sure that it fits the product accurately.

Paper IV-Printing Technology (Part - II)

Unit I:
Paper & Ink: Raw materials and processing-sources manufacture and finishing. Main classes of paper and board sizes, paper requirements for different printing process, paper handling. Paper properties runnability and printability-structural: formation, 2 sidedness, grain direction- physical: GSM, caliper, bulk, porosity, smoothness, dimensional stability, curves, moisture content and rh-optical: glosses, brightness, colour, opacity-chemical: pH, ash content, tensile, burse, tear internal bonding, fold endurance, stiffness, pick resistance.

Unit II:
Printing inks-raw materials-colorants: pigment classifications, preparations and properties-Inorganic: white and coloured, carbon black, metallic, ultramine and fluorescent-Organic: Diarylide yellow, hansa yellow, rodamine, lithol, rubine toner, phalocyanine blue and green and alkali blue, benzidine orange, toluidine red and lake red C-Dyestuffs. Special inks and drying mechanism: heat sets, quick sets, gloss, magnetic and water based inks, Radiation curable inks-IR, UV & EB, Different types of ink drying mechanism. Ink problems-related to major printing processes causes and remedies.

Unit III:

Digital Printing:

Electrophotography, Ionography, Thermography, Electrography, Photography, X-graphy, Hybrid printing systems, CTF,-types, workflow, film materials. CTP- Designs, Plate substrates, workflow, imaging systems CTP for flexographic printing, Computer to cylinder for Gravure printing, Computer to Screen for Screen Printing.

Computer to Press/Direct imaging: Direct imaging with removal of master for each job, Reimagable Master, Concepts of Re- imagable Master with material application/Ablation- re

imagable printing plate systems without material application. Chemical material systems for generating reimagable surface.

References:

1. R.H. Leach, The Printing Ink Manual, fifthe edition, Chapman & Hall, London
2. Robert F Reed, What the Printer should know about inks, GATF
3. Clifwool, A Manual for Flexographic inks, Fishbum Printing ink co. Ltd
4. Fonald E Tood, Printing inks, Pira International, United Kingdom
5. Printing Materials Science and Technology- Bob Thomson, PIRA
6. Advances in Printing Sciences and Technology, Vol. 24-J.Anthony Bristow.
7. Handbook of printing and production-Michael Bernard, John Peacock.
8. Introduction in Printing Technology-Heigh. M. Speir.
9. W.H. Bureau, "What the printer should know about the paper", GATF
10. J.P. Casey, Pulp and paper chemistry and chemical technology.
11. R.J. McGill, " measurement and control in paper making", Adam Hilger Ltd.
12. D.Venkateswaralu, Paer for printing and packaging. SS Graphics

B. Practicals:

   A. Software Skill Development   **1) Photoshop Advance**   **150 hrs**

                                                  2) Shree Lipi

   B. Designing Skill Development   **150 hrs**

      1) Advertising Designing
      2) Poster
      3) Packaging
      4) Artwork Making

   C. Project Work

      1) Reference Collection
      2) Advertising Agency Visit
      3) Printing Press Visit