PHOTOGRAPHY DEPARTMENT

University of Allahabad

(A Central University)

B.A./B.Sc. Part - I, II

B.A./B.Sc.

Three Years Photography Course

B.A./B.Sc. Part- I
Basic Photography
First Paper mm. 33

Properties of Electromagnetic Spectrum, Theories of Light, Transmission Spectrum, Dispersion, Reflection, Transmission, Refraction, Polarization, Controlling Light, Lighting Conditions, Spectral Composition, Visible Infra-Red, Ultra Violet, Simple Photometry, Units and Measurements, Day Light, Incandescent Light, Carbon Arc Light, Mercury Vapour, Flourescent, Cold Cat ode, Sodium Vapour Lamp, Flash Bulbs, and Electronic Flash, Characteristic and special contents.

Cameras : Pin Hole, Box, Folding, Studio, Comparisons of the eye with the Cameras. Camera Body, Camera Handling, Cameras Mechanism, Shutter, Aperture, Focus, Film Transport. Comparison and Classification of Cameras, Their Focusing Mechanism, View-Finders, SLR, TLR, Cameras, Film Format, Medium Format, Miniature, Disc, Digital Cameras, Stereoscopic, Cinematography Cameras, Tele Vision Cameras, Video Camera, Operation, Exposure, Exposure Latitude, Methods of Estimation, Types of Exposure Meters and their Function, Comparison, Exposure Table. Shutters, their types and limitations. Circle of confusion its effect on. Sharpness Blur. Techniques of photographing action. Aperture its' effect. Resolution. Depth of Field, Depth of Focus. Factors Controlling Depth of Field and Focus. Still Life, Table Top Photography.

Lenses : Simple, Complex, Concave, Mirror Lens, Lens Equations, Aberration and their corrections, Ray Diagram. Compound Lens Photometry, Law of Reciprocity, Reciprocity Failure, Optical Material. For lenses, Lens Coating, Law governing Depth of Field. Supplementary Type of lenses. Normal, Telephoto, Wide Angle Zoom, Macro, Soft Focus, Converters, Extension Tubes, Extension Rings, Bellows.

Pictorial Composition : Value and Utility of Composition Creative Composition, EFFECT OF Cropping. Where and Why to Compose. What to Add and What to remove in composition. Role of Composition in Pictorial Composition. Laws of Composition Forms, Lines, Tone, Texture, Figures, Shapes, Geometrical Lines and Shapes. Mathematical Figures, Balance, Repetition, Variety, Contrast, Climax, Cohesion.

B.A./B.Sc Part - I
Processing and Printing
Second Paper mm 33

Photo lab techniques. Enlargers. Type of Enlargers, Type of Light Source for Enlarges, Working. Condenser Lens Vs Diffusion Enlargers. Exposure. Exposure Methods of Estimation Types of Exposure Meters and Their Functions, Comparison. Filters, Their types, Compensating Filters, Contrast Filters Special Filters, Liquid Filters Chemical Filters, And Their Uses. Optical Limitations, Filter Factor. Computerized Photo Finish.

Developers, Constituents of Developers, Tropical Developers, Physical Developers. Mono Bath Developers, Techniques of Developments, Effect of Temperature and Time. Time and Agitation, Types of Developers, Stop Bath, Wetting Agents, Effect of Over and Under. Development. Latent Image, Role of Gelatin in the Emulsion, Latent Image Effects. Herschel, Claydent and Willard eftect. Sabatier eftect. Toning. Their types and uses. Elementary theory of Reduction, Intensification, Reticulation, Fogging and their types. Film their types. Orthochromatic, Panchromatic, Infra Red films. Light Sensitive Chemicals. Developing and Fixing of Films and Sensitive Papers. Bass-Relief. Tone separation. Reticulation, Posteurization, Reversal Development and Solarization. Characteristic Curves, Gamma Value and its Determination of Emulsion Speed. System of Speed Determination. Speed Standards, Various systems compared. Photographic Papers and their types, Grades, Weight, Texture and Paper Base. Instant Photography, Special Effects in Printing. Bas Relief; Photogram, Physiographs, Burning, Dodging, Vegnetting, posterization, Tone Separation. Processing of Films, Defects of Negatives and their removable and Preventions, Principles of Retouching and Finishing.

B.A./B.Sc Part - I
Appreciation of Media
Third Paper mm 34

Photo Appreciation, How Sensitive is the student in relation to Visual Communication by way of showing them out standing work done by renowned Photographers and stalwarts, by asking Critical Appreciation of the same. Origin and History of Photography. This should include Evaluation of Technology as well as Philosophy of Picture Taking. Scope of Photography in various fields. Its use and importance. Painting Vs. Photography. Limitations, Development and Advantage of one another. Indian scenario development of Photography in India. Historical and Present day Television Photography, Video Photography and Still Photography their uses and advantages. Black and White Vs. Color Photography, Medical Photography, Astronomical Photography, Under Water Photography, Aerial Photography, Modeling Photography, Fashion Photography, Design, Advertisement Photography, Space Photography, Architectural Photography. Photography as a modem Tool in the hand of Mankind. Utility of Photography as a very powerful Media in the Field of Science, Technology.

Practical B.A./B.Sc Part - I mm 50
Practical Instructions :

Note : The entire practical must be written in a Practical Note Book which should be Clean. This Record will be placed before the PRACTICAL EXAMINER at the time of FINAL EXAMINATION.

All the Practical must be done according to the Instructions Laid. Each Practical Must be completed within Two Hours Time.

DO NOT WAIST ANY CHEMICAL, SENSITIVE MATERIAL.

ALL THE EQUIPMENT MUST BE HANDLED WITH UTTER CARE

Note : All the students will have to Accompany for an out door Photography Project. This will be compulsory for all the students. This Project will be Submitted to the External Examiner at the time of Final Examination. This Project can be Related to wild life, Mountain Range, Snow Scape, Fashion, Architectural, Ancient Monuments Sea Beach and Landscape Photography. This Project is the part of the syllabus.

1. Inspect different type of Cameras and see how each part works and find out what is its function. Focus different places and see what happens to the intensity of light when the lens is at Full Open, or when the Lens is Closed to Minimum.

2. Prepare developer for Photographic Films and Sensitive Paper. Here we will be using.

3. Agfa 100 Universal Developer for Processing Photographic Sensitive Papers and D.K. 23 for Processing Films.

AGFA IOO PAPER DEVELOPER / DEVELOPER DK 23 FILM

CHEMICAL USED

1.	Metol	01 gram	Metol	7.5 grams
2.	Sodium Sulphite	13 gms.	Sodium Sulphite	100 gma.

3.	Hydroquinone	03""	Water	1,000CC
4.	Sodium Carbonate	26""	Develop Film At 65"F USE 1:1 Eight Mint.	
5.	Potassium Brominde	01""	In a Tank. Developing Time in Tray 5 min.	
6.	Water	1,000cc		

For Developing Photographic Sensitive Paper Use 1:1 Ratio

Developing Time 120 sec. At 65" F

Note : All the above Chemicals for preparing AGFA 100 developer must be dissolved in water one after the other according to the SERIAL MENTIONED ABOVE. Developer thus the prepared will be WHITE in COLOR. Otherwise the color of the developer will appear BROWN, indicating that the Developer cannot be used.

3. Determination of Focal Length and 'f' value of Photographic Objectives.

4. Study of Depth of Field of different Photographic Objects.

5. Expose 3 or 4 Indoor Objects on a Film and Develop the Film. Note the distance between the Objects and Camera, Angle of Light, Camera Angle, Aperture of the Lens in Use. Film Speed (ASA/DIN/ISO) What was the Exposure given which Developer was in use, what was the Temperature, Developing Time and Constration of the Devreloper. Then Explain and Criticize the entire work. The objects in use can be Flowers, Fruits, Clay Toys, Dolls etc.

6. Load a Black & White 125 ASA ISO FILM in your camera and Using Two Lamp of 250 W. each (a) Expose the object for 1/10 sec. at f 5.6. Exposure can be varied according to the distance and light Intensity. Develop the exposed film. Print the Negatives on a suitable Grade of Paper and Criticize the result.

7. Expose 5 or 6 OUT DOOR objects USING SUN as the MAIN SOURCE of LIGHT. Prepare the Negative by using a FINE GRAIN DEVELOPER (DK23) Print the Negatives thus obtained.

Criticize the Result.

8. Expose some OUT DOOR objects using SUN as the Main Source of Light at I see, 1/10 sec, 1/100 sec, 1/125 sec, 1/400sec. Develop the Negative to NORMAL DEVELOPING TIME. Now see and observe the NEGATIVES and CRITICIZE the EFFECT of UNDER and OVER EXPOSURE.

9. Expose 4 or 5 objects giving NORMAL EXPOSURE and Develop (a) One Frame to Normal Developing Time, (b) Second Frame to Half the Normal Developing Time (C) Third Farme to Four Time the Normal Developing Time. Observe the Negatives and criticize the Action of Developer. What is the Contrast, What is the Grain Size.

10. Print the above Negatives on Different Grades of Photographic Papers. Normal Grade, Soft Grade, Hard Grade, Special Grade Observe Prints and Criticize Both the Negatives and Prints.

11. (a) Using a 125 ASAI ISO Black and White Film, Expose a Bunch of Rose, Green Leaves, Blue Background.

(b) Expose the same Using a Yellow Filter, Blue Filter and Red Filter. Observe the Result and Criticize the effect.

12. Collect some Good Quality Negatives and Enlarge the to 2, 4, 6, 8 and 10 Times Magnification. See the effect of Contrast, Tonal Gradation, Grain Size, Sharpness and Picture Format.

13. Make Six different Prints from different Negatives and Tone them to Different Tones, Using Different Toning Methods. (Sepia Toning, Copper Toning, Blue Toning, Golden Toning, Dye Toning).

14. Reduce an over exposed or Over Developed Negative Using-

(a) Farmer's Reducer.

(b) loding Iodide Reducer. Explain Why and Where Reduction is Necessary.

15. Intensify and Under Developed Negative using Dichromate Intensifier. Explain Why and Where intensification is Necessary.

16. Prepare Creative Photograms Using objects of your choice. Objects can be Glass Toys, Leaves, Dolls, Tree Branches, Ornaments, Gears, Tools etc.

PROJECT :

Prepare Two Projects from the following :

(i) A Photographic Essay on any theme or subject of 7"x9" in Six Numbers.

(ii) A set of Advertising Studies for a Calander, Birth Day Cards, Wedding Cards.

(iii) A view of Allahabad Consisting 6 Prints of 7"x9" in size.

B.A./B.Sc Part - II
Still Photography & Audio Production Course
First Paper mm33

Color Photography : Color Temperature, Mired Scale, Kelvin Scale. Tripack Films Color Additive Process, Color Subtractive Process. Reversal Films and their properties. Processing and uses. Color Enlarger, Types and Comparison with Black & Whie Enlargers. Color Correction and Color Printing Filters. Multi Grade Papers.

Filters for color. Ultra Violet, Polarizing Filters, Sky Light, Color Compensating Filters, Color Conversion Filters. Lighting, short coming of Single Flash Unit, Their correction. Flash Techniques, Strobe Light Lighting the subject, Light Scorce. Quality of Light. Light Meters.

Advance Printing Techniques Removal of Residue, and use of water for removal of Unwanted Chemicals.

Toning Types, Chemicals, Metallic and Dye Toners, Uses and Utilities of Toning. Basic Sensitometry. Optical Density. Characteristic Curve and Densitometers.

B.A./B.Sc Part - II
Advance Photo Techniques
Second Paper mm33

Use of Medium Format Cammera and Comparison with other different formats, Comparison in working. Expose Raw Material of Different Kind and Find Out their Characteristics. Use of Different Focal Length Lenses, Normal, Wide, Zoom, Telephods, Long Lenses. Their Comparison.

Properties, Uses, Advantages and Dis-Advantages.

The Subject and the Photographer. Subjective and Objective approach. Job Requirement. Portraiture. Type of Lighting to suit the personality and Purpose. Special Effects. Psychology of Portraiture. Make Ups, Back Ground Props. Out Door Portraiture.

Fashion Photography various types and Uses. History of Fashion Design. Choice of Accessories and props. Architectural Photography. What is Architecture? Understanding the functions of Building its Design, Style, Period and Angle. Lenses Used for Architexture Pnotography.

Principles of Composition in Relation to View Point and Perspective. Control and Correction of Perspective. Special Problems and Techniques. Commercial, Industrial and Advertising Photography. The Problem of Photographing Furniture, Machinery, Textile, China Glass, Metal and Wood (Polished & Un-Polished). On Location and Studio, with and without Living Figure. Need to Understand and show the Function of Product. Interpretation of the Clients Ideas. Relationship between the Client, Photographer and its Staff.

Measuring Light. By using an Exposure Meter. Color processing and Printing. Use of Different filters their Uses and Effect on Color.

Indoor Lighting, its Different Types, Arrangements, Angle of Portraits. Table Top and Still life.

In Camera Special Techniques and Special Effects. Post Exposure, Special Effects in Camera and Dark Room.

B.A./B.Sc Part - II
Photo-Journalism
Third Paper mm 34

What is Photo-Journalism. Theories and Techniques. Scope of Photo-Journalism. Importance of Picture and Magazine in News Program. Reporting through Photographs, News of Parliament, sports, Development, Stories, Featurs, and their Interviewing etc.

Photo-Visualization of Audience taste. News and News Reel. Equipment for Photo-Journalism. Choice of Light Equipment. Lens, Camera, Raw Stock for Particular Assignment.

Introduction and Practice of Rapid Focusing Technique. Auto Focusing of Camera and Lenses.

Range Finders, Hyperfocal Distance. Its utility. Where and Why. Retrieval Method Photo CD. Computerized Access System. Photo catalouge Photo Editing, Continuity, Copying, Caption, Size and Placement. Digital Imaging, Photo Printing Technology, (Quality Control. Printing Techniques. Half Tones and Color).

PRACTICALS :

Note : Students will have to go for an excursion to complete their Project Work as assigned by the Teachers. Which will be submitted at the Final Examination.

1. Study the Effect of Different exposure and Various developing Time on a Still Life object showing. Tones Texture and Lighting.

2. Dark room Work should be continued with a view to develop a Professional Expertise in handing of RAW and Sensitive Material. Measurement of Density.

3. Comparative study of the Effect obtained by the Use of Normal, Wide Angle, Telephoto and Zoom Objectives.

4. Determination of Resolving Power of Objectives using Standard Chart.

5. Out Door Photography Including use of Filers. This should include out Portraiture, Candid Photography Street Scenes. Photography of Moving Objects, Architectural Monuments Photography. Land Scape Photography.

6. Portraiture with Model and Different Type of Lighting of Suit them, By Day Light, Artificial and Flash Light, Using Different Cameras, Lens and Rims.

7. Color Photography, Both and Negative Materials, Including Processing and Printing. Study the Work of Different Top Photographers of the Country and Abroad.

8. Make Photographs of Machinery and Lab. Equipment Model and Layout, Display of Consumers. Product, Art Objects. Domestic and Industiral, Interior, Museum objects, Using a Technical Or Mono-Rail Camera, Making your self thoroughly familiar with all the Accessories and Moment. The effect Produced by their use and the siutations where their use in necessary.

9. Macro Photography, Using Extension Bellows and Extension Rings. Photo-Microphotography with various Illumination, Dark Field of Transparent and Solid Objects, Mono-Chrome and Colors. Project. Selecting the Drawing attention to the Most Significant Stage.

10. Make a Series of Photograph to illustrate a report on a industrial Process of Development of Project. Selecting and Drawing attention to the Most Signant Stage.

11. Make some Photograph either color of Black and White of Some Consumers Goods for direct or Indirect Advertising or For A Calander for some Public Utility service.

12. Prepare a Photographic Essay in Color or Black & White on any Topic of General Interest for a Magazine or an Exhibition or Lecture.

13. Practice Different technique of Reprography, Document and Copying by Contact or Reflection to Micro-Filming.

14. Make short Action Sequence 20-30 Sec. On one Suitable Action. Animate a Series of Drawing.

15. Current Fashion, Light Dress, Foot-Ware, Jewelry etc.

इलाहाबाद विश्वविद्यालय
फोटोग्राफी विभाग
प्रयोगात्मक कार्य एवं निर्देश

प्रयोगात्मक पुस्तिका में सभी प्रयोग सफाई से लिखे जाने चाहिए, जिसे परीक्षा के समय परीक्षक को दिखाया जायेगा।

सही तरीकों से प्रयोगों को करें तथा प्रत्येक प्रयोग को दो घण्टे की अवधि में समाप्त करें। कोई भी सामान व्यर्थ बरबाद न करें। सभी उपकरणों को सावधानी से प्रयोग में लायें। डेवलेपर आदि को छितराये नहीं, सभी प्रयोग में लाए गये बर्तनों को भली प्रकार धोकर, सुखाकर रख दें।

(1) विभिन्न कैमरों का भली प्रकार निरीक्षण करें तथा प्रत्येक भागों को समझें तथा देखें कि वे किस प्रकार कार्य करते हैं। विभिन्न वस्तुओं को फोकस करें तथा देखें कि अपरचर् को कम या अधिक करने से प्रकाश की मात्रा में क्या परिवर्तन आता है तथा क्षेत्र की गहराई (Depth of field) में क्या असर पड़ता है।

(2) AGFA 100 डेवलपरों तथा DK 23 को बनायें जो आगे चलकर प्रयोग में लाए जायेंगे।

मेटाल	1 gm	फिल्म डेबलपर	DK 23
सोडियम सल्फाइड	13 gm	मेटाल	7.5 gm
हाइड्रोक्यूनान	3 gm	सोडियम सल्फाइट	100 gm
सोडियम कार्बोनेट	26 gm	पानी	1000 c.c.
पोटेशियम ब्रोमाइड	1 gm		
पानी	1000 c.c.		

सभी रासायनिक तत्वों को इसी क्रम में घोलें। इस प्रकार तैयार किया डेवलेपर को भूरे रंग के बोतलों में कार्क लगाकर रक्खें। इस्तेमाल में लाने के लिये 1

भाग पानी तथा 1 भाग डेवलेपर को लेना चाहिए। डेवलेपिंग का समय 5 मिनट 65°F पर तथा 3 मिनट 80°F पर।

(3) अन्दर स्थित 3 या 4 वस्तुओं के चित्र खींचें। फिर डेवलप करें। इन वस्तुओं की कैमरे से दूरी, प्रकाश की मात्रा, कोण, लेन्स का अपरचर, फिल्म की गति (A.S.A.) कितना एक्सपोजर दिया, कौन-सा डेवलेपर प्रयोग में लाया गया, तापमान, डेवलेपिंग का समय आदि को ध्यान में रखते हुए अच्छाइयों तथा कमियों का विश्लेषण करें। उदाहरण के लिये निम्न वस्तुओं का प्रयोग करें। फूल, फल, मिट्टी की आकृतियाँ, खिलौने, गुड़िया, आदि।

125 ASA की फिल्म को लेकर कैमरे में लोड करें और 250 वाट के दो लैंप से वस्तु पर प्रकाश डालें। तो हमारा एक्सपोज f 5.6 पर 1/10 सेकेण्ड होगा। एक्सपोजर को प्रकाश की मात्रा तथा वस्तु से कैमरे की दूरी पर अधिक या कम किया जा सकता है।

बरसात तथा गरम मौसम में फिल्म को निम्न घोल में डालें जिससे फिल्म सख्त हो जायेगी और पिघलेगी नहीं।

फारमलीन 40%	–	1 c.c
पानी	–	20 c.c

(4) ऊपर के प्रयोग से प्राप्त निगेटिव को गैसलाइट पेपर पर प्रिन्ट करें। प्रयोग पुस्तिका में निगेटिव के घनत्व, कन्ट्रास्ट, पेपर का ग्रेड, प्रकाश की मात्रा, परिणाम, सावधानियाँ तथा दूरी के बारे में लिखें।

(5) सूर्य के प्रकाश से 4 या 5 चित्र कमरे से खींचे और इस प्रकार बने निगेटिव को पेपर में प्रिन्ट करें।

(6) कुछ वस्तुओं को प्रकाश में लाकर 1/60 sec 1/30, 1/15-1/10, 1 sec तथा 10 से० का एक्सपोजर देकर चित्र खींचे तथा नार्मल समय के लिये डेवलप करें। प्राप्त निगेटिवों को ध्यान से देखें और विभिन्न समय में खींचें चित्रों का आलोचना करें कि अधिक या कम एक्सपोजर देने से क्या परिणाम होता है।

(7) 4, 5 चित्र सही नार्मल एक्सपोजर पर खींचे तथा इन्हें 1/4, 1/2, 1 तथा 2 गुना समय तक डेवलप करें। प्राप्त निगेटिवों की आलोचना करें कि नार्मल से कम तथा अधिक समय तक डेवलप करने से क्या अन्तर होता है।

(8) 7 से प्राप्त निगेटिवों को–

(i) एक ही ग्रेड के पेपर पर प्रिन्ट करें।

(ii) सही ग्रेड के गैस लाइट पेपर पर प्रिन्ट करें।

(iii) ब्रोमाइड पेपर पर प्रिन्ट करें।

निगेटिव सहित प्राप्त प्रिन्टों को critisize करें।

(9) 125 ASA की पैक्रोमेटिक फिल्म से एक लाल गुलाबों के गुलदस्ते को जिसमें हरी पत्तियाँ हों तथा पृष्ठ भूमि में नीली स्क्रीन है, चित्र, निम्न फिल्टरों के द्वारा खींचें।

(i) पीला फिल्टर।

(ii) नारंगी फिल्टर।

(iii) गहरा लाल।

आउट डोर चित्र लेने के लिये निम्न सारिणी का प्रयोग करेंगे तो सभी चित्र सही एक्सपोज होंगे।

जितनी फिल्म की गति होगी उसी के अनुसार शटर स्पीड लें। उदाहरण– यदि हमारी फिल्म 125 ASA की है तो शटर स्पीड 1/25 sec. होगी।

शटर स्पीड 1/125 sec.

चमकता सूर्य	चमकता सूर्य	सूर्य बदलों से	काले बादल	बरान्डे
साफ आकश	बादल युक्त	घिरा अत्यधिक	कोई परछांई	में

गहरी परछाई	आकाश हल्की परछाई	हल्की परछाई	नहीं	वस्तु
अपरचर f 16	f 11	f 8	f 5.6	f 4

ऊपर स्थित दशा में विभिन्न चित्र खींचें, डेवलप करें तथा उनके प्रिन्ट बनावें।

इस प्रकार प्राप्त निगेटिवों को प्रिन्ट करके critisize करें।

(10) कुछ अच्छे निगेटिवों को लें और उनके ब्रोमाइड पेपर पर 2, 4, 8, 16 गुना इनलार्जमेंट बनाये।

(1) विभिन्न आकार के अच्छे प्रिन्टों को निम्न टोनिंग घोलों में टोन करें।

(1) सीपिया टोन–सोडियम सल्फाइड द्वारा प्रिन्ट को निम्न घोल में ब्लीच करें।

पोटेशियम ब्रोमाइड	–	5 ग्राम
पोटेशियम फेरीसायनाइड	–	1 ग्राम
पानी	–	100 सी.सी.

ब्लीचिंग के उपरान्त प्रिन्ट को भली–भाँति पानी में धो लें।

अब प्रिन्ट को

सोडियम सल्फाइड	–	4 ग्राम
पानी	–	100 सी.सी.

के घोल में डाल दें। प्रिन्ट भूरा या सीपिया टोन में आ जावेगा।

नोट – (i) सोडियम सल्फाइड घोल से उत्पन्न गैस फोटोग्राफी सम्बन्धित वस्तुओं के लिए हानिकारक है इस प्रयोग को खुले स्थान पर करें।

(ii) सोडियम सल्फाइड के घोल को कमजोर न होने दें। कमजोर घोल अच्छे टोन नहीं देता है। 20% घोल भी अधिक समय तक नहीं टिकता हैं यह अपनी ताकत को धीरे–धीरे खोता जाता है।

(2) हाइपो–एलम द्वारा सीपिया टोनिंग।

सर्वप्रथम प्रिन्ट को फार्मलीन या एलम के घोल में सख्त (हार्ड) कर लें।

हाइपो	–	40 ग्राम
पानी	–	200 सी.सी.

इस घोल में 10 ग्राम एलम को मिलावे।

प्रयोग के लिए इस घोल का ताप 40°C-50°C तक होना चाहिये अर्थात घोल अधिक गरम होना चाहिए। इस घोल की खास बात यह है कि यह दो चार प्रिन्ट को टोन करने के उपरान्त ही उत्तम फल देता है। अतः कुछ पुराने खराब प्रिन्टों को इस घोल में टोन कर लेना चाहिये फिर जिस प्रिन्ट को टोन करना हो उसे इस घोल में डाल ले। इस कार्य में 10–30 मिनट का समय लग सकता है। ठंडे पानी का प्रयोग न करें।

(3) कापर सल्फेट द्वारा टोनिंग :

घोल A	कापर सल्फेट	1 ग्राम
	पोटेशियम साइट्रेट	5 ग्राम
	पानी	100 सी.सी.
घोल B	पोटेशियम सल्फेट	8 ग्राम
	पोटेशियम साइट्रेट	5 ग्राम
	पानी	100 सी.सी.

प्रयोग के लिये A तथा B को बराबर मात्रा में लें, इस A+B घोल में प्रिन्ट को डालें। तथा उचित टोन आने पर निकाल लें।

(4) नीला टोन :

घोल A	पोटेशियम फेरी सायनाइड	2 ग्राम
	गन्धक का सान्द्र तेजाब	4 बूँद
घोल B	फेरिक अमोनियम साइट्रेट	2 ग्राम
	गन्धक का तेजाब सान्द्र	4 बूँद

इस्तेमाल के लिए A+B को बराबर मात्र में लें। इस घोल में प्रिन्ट तुरन्त नीले हो जाते हैं अतः इस घोल को 3 गुना पानी में Dilute कर लेनी चाहिए।

(12) घटाव (रिडक्शन) :

फारमर रिड्यूसर

घोल A	हाइपो	10 ग्राम
	पानी	100 सी.सी0
घोल B	पोटेशियम फेरीसायनाइड	2 ग्राम
	पानी	100 सी.सी.

प्रयोग के लिए 5 सी.सी. A का तथा 5 सी.सी. B को लेकर तुरन्त इस्तेमाल करें अन्यथा यह घोल धीरे-धीरे खराब हो जावेगा।

अधिक डेवलप तथा अधिक एक्सपोजर वाले निगेटिव या प्रिन्ट को सही घनत्व में लाने के लिये इस घोल में हम निगेटिव या प्रिन्ट डालकर हिलाते रहते हैं उचित घनत्व आने पर उन्हें पानी से भली प्रकार धो लेते हैं और फिर सुखा लेते हैं।

(13) तीव्रीकरण, इनटेंसिफिकेशन :

वाइक्रोमेट विधि – जो भी निगेटिव अन्डर डेवलप रह जाय उसे नार्मल बनाने के लिये बाइक्रोमेट इनटेन्सिफायर का प्रयोग करते हैं।

सर्वप्रथम निगेटिव को–

पोटेशियम ब्राइक्रोमेट	1 ग्राम
पानी	100 सी.सी.
Hcl. conc.	5 सी.सी.

के घोल में ब्लीच कर लें।

ब्लीचिंग के उपरान्त फिल्म को तब तक धोवें जब तक पीला रंग हट न जाय। अब किसी नार्मल डेवलेपर में निगेटिव को डेवलप कर लें। इस क्रिया को तब तक दुहरावे जब तक इच्छित घनत्व प्राप्त न हो जाय।

(14) रूप चित्र (पोट्रेट) विभिन्न स्थिति के प्रकाश (Arrangements) व्यवस्था में बनावें। eg. 45^0 60^0 साइड लाइट आदि।

(15) किसी घनी (ओवर एक्सपोज्ड तथा डेवलप) निगेटिव के घनत्व को खुरचकर कम करे रिटचिंग मीडियम से पेन्सिल का कार्य करें। निगेटिव के चमकीले सतह पर लाल रंग लगा कर उसे हल्का करें। ब्रोमाइड पेपर पर आए पिन होलों को पेन्सिल या ब्रश द्वारा निकाले तथा उभारें।

(16) फोटोग्राम, या शैडोग्राम या बिना कैमरे के चित्र बनाना

विभिन्न वस्तुओं को (पत्ती, काँच के खिलौने गले की चेन। आदि को ब्रोमाइड पेपर' के ऊपर डार्क रूम में सजा लें अब सफेद प्रकाश को या लाइट को एक या दो सेकेन्ड के लिए जला दें। फिर पेपर को डेवलप कर फिक्स कर लें। फोटोग्राम तैयार।

प्रयोग नं0 1

विषय – एक निगेटिव का कान्टैक्ट प्रिन्ट बनाना।

उपकरण – कान्टैक्ट प्रिन्टिग फ्रेम, निगेटिव।

पेपर का प्रयोग – अगफा सिंगल वेट, नार्मल।

एक्सपोजर – 10 से. 60 वाट लैम्प से 3 फीट की दूरी पर।

डेवलेपिंग समय – 90 से. 68^0 फा0 ताप पर।

फिक्सिग समय – 5 मिनट।

घुटने का समय – 1/2 घंटा बहते पानी में।

परिणाम – उत्तम।

निरीक्षण – निगेटिव के कुछ अधिक एक्सपोज होने के कारण अधिक एक्सपोजर देना पड़ा जिससे सही प्रिन्ट बन सके। निगेटिव को हल्क सा रिड्युस करने से निगेटिव के घनत्व को कम किया जा सकता है। सही टेस्ट स्ट्रिप निकाल कर सही डेवलपिंग समय ताप के अनुसार देना चाहिए। अधिक एक्सपोजर तथा अधिक डेवलपिंग किसी भी मूल्य पर नहीं करना चाहिए।

Date		
Example	:	Experiment No. 1
Object	:	To prepare a contact print of a given negative.
Apparatus	:	Contact Printing frame.
Paper Used	:	Agfa single wt. glossy. normal.
Exposure Given	:	10 sec. from a 60 wt. lamp at a distance of 3 ft.
Developing time	:	120 sec. at temp. 68° F.
Fixing time	:	5 Min.
Washing time	:	1/2 Hour in running water.....
Result	:	Satisfactory.
Observation	:	The negative was slighty our exposed hence a longer exposure was reqiured for a correct print. By reducing the negative to lesser density this over exposure problem can be solved.
Precautions	:	Care must be taken in taking out the test strips and correct developing time must be given at the temp. Over exposure and over developing must be avoided.

B.A./B.Sc. Part-1 **PRACTICALS : MM 50**

PRACTICAL INSTRUCTIONS

NOTE : All practical project must be presented in Analoge/Digital form. This record will be placed before the PRACTICAL EXAMINER at the time of FINAL EXAMINATION.

All the practical must be done according to the INSTRUCTIONS LAID. Each practical must be completed with in two hours time.

ALL THE EQUIPMENT MUST BE HANDLED WITH UTTER CARE.

NOTE : ALL THE STUDENT WILL HAVE TO ACCOMPANY FOR AN OUT DOOR PHOTOGRAPHY PROJECT. THIS WILL BE COMPULSORY FOR ALL THE STUDENTS. THIS PROJECT WILL BE SUBMITTED TO THE EXTERNAL EXAMINER AT THE TIME OF FINAL EXAMINATION. THIS PROJECT CAN BE RELATED TO WILD LIFE, NATURE, MONUMENTS RANGE, SNOW SCAPE, FASHION, ARCHITECTURAL, ANCIENT MONUMENTS, SEA BEACHS AND LAND SCAPE PHOTOGRAPHY. THIS PROJECT IS THE PART OF THE SYLLABUS.

1. Inspect different types of cameras and see how each part works and find out what is its function. Focus different places and see what happens to the intensity of light when the lens is at FULL OPEN, or when the LENS IS CLOSED TO MINIMUM.
2. Determination of FOCAL LENGTH and 'f ' value of photographic OBJECTIVES.
3. Study of DEPTH of FIELD of different photographic objects.
4. Expose 3 or 4 indoor object on D.S.L.R. CAMERA. The distance between the object and camera, angle of light, camera angle, aperture of the lens in use. Film speed ASA/ DIN/ISO. What was the exposure given which developer was in use, what was the temperature, developing time and constration of the developer. Then explain and criticize the entire work. The objects in use can be, flowers, fruits, clay toys, dolls etc.

5. Expose 5 or 6 out door objects using sun as the main light source at 1 sec., 1/10 sec., 1/60 sec., 1/125 sec. Now see and observe the result and criticize the effect of under and over exposure.

6. Using 125 A.S.A./I.S.O. expose a bunch of roses having green leaves, blue background. Expose the some using a yellow filter, blue filter and red filter. Observe the result and criticize the effect.

7. Prepare creative photograms using objects of your choice. Objects can be glass toys, leaves, dolls, tree branches, ornaments, gears, tools etc.

PROJECT

PREPARE TWO PROJECTS FROM THE FOLLOWING.

1. A photographic essay on any theme or subject of 7"x9" in six numbers.
2. A set of advertising studies for a calander, birth day cards, wedding cards.
3. A view of Allahabad consisting 6 prints of 7" x 9" in size.
4. Candid photography consisting 5 prints of 7" x 9" in size.
5. Make some portraits using 45 degree, 60 degree and 90 degree lights.

NOTE : Students will have to go for an excursion to complete their project work as assigned by the teachers. Which will be submitted at the final examination.

ALL WORK SHOULD BE PRESENT ON PEN DRIVE OR D.V.D.

1. Study the effect of different exposure tims on a still life object showing tones texture and lighting.
2. Comparative study of the effect obtained by the use of normal, wide angle, telephoto and zoom objectives.
3. Determination of resolving power of objectives using standard chart.
4. Out door photography including use of filters. This should include out portraiture, candid photography, street scenes. Photography of moving objects, architectural monuments photography. Land scape photography.
5. Portraiture with model and different type of lighting to suit them, by day light, artificial light and flash light, using different cameras and rims.
6. Study the work of different top photographers of the country and abroad.
7. Make photographs of machinery and lab equipments model and layout, display of consumers products, art objects, domestic and industrial, interior, museum objects, using a d.s.l.r. camera, making your self thoroughly familiar with all the accessories and moment. The effect produced by their use and the situations where their use is necessary.
8. Macro photography, using extension bellows and extension rings. Photomicrography with various illumination, dark field of transparent and solid objects, mono-chrome and colors. Project selecting and drawing attention to the most signifi cant stage.
9. Make a series of photograph to illustrate a report on a industrial process of development of project. Selecting and drawing attention to the most significant stage.
10. Make some photograph, either in color or black and white of some consumers goods for direct or indirect advertising or for a calander for some public utility service.
11. Prepare a photographic essay on any topic of general interest for a magazine or an exhibition or lecture.
12. Practice different technique of reprography, documents and copying by contact or reflection to micro-filming.
13. Make short action sequence 20-30 seconds on a suitable action. Animate a series of drawing.
14. Current fashion, light dress, foot-ware, jewelry etc.