Unit 36: Darkroom Applications

Unit code: L/502/5227

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

● Aim and purpose

The aim of this unit is to enable learners develop skills and knowledge of traditional film-based darkroom processes. Learners will also develop knowledge of the services of colour processing laboratories.

● Unit introduction

This unit introduces the materials, technology and techniques associated with traditional film-based photography. Monochrome film processing and printing can give unique results. The tactile nature of darkroom photographic printing processes allows for a direct involvement which clearly reveals the important relationship between light and time. This develops an understanding of exposure and can be helpful when generating a personal photographic response to a subject. As the creative intention influences the selections made during all stages of photographic production, it is important to be able to visualise the end result. For example, the decision to make colour rather than monochrome photographs to represent a topic will influence the way in which the photographs are understood by their audience. Similarly, the selection of a specific monochrome film and developer combination will allow for particular creative intentions to be accomplished when coupled with skilled handling in the darkroom.

Black and white darkroom printing remains a valid medium for exploring visual communication. For example, in the fields of fine art and photography itself the techniques and potential in darkroom applications are applied by practitioners when producing personal portfolios. The processes and techniques available in the darkroom also allow the practitioner to experiment in a very tactile way

Learners will explore the materials, processing and printing techniques associated with traditional film-based darkroom practice. When generating ideas for their own photographs, learners will develop their visual skills through reference to published examples of monochrome photography. Learners will develop their darkroom techniques through their use of darkroom processes when creating their own photographs. Learners will also be introduced to the services of colour processing laboratories. When reviewing their own use of photographic tools, learners will consider technical and aesthetic perspectives.

● Learning outcomes

On completion of this unit a learner should:

1   Be able to create photographic negatives in the darkroom

2   Know about the services provided by colour laboratories

3   Be able to create photographic prints in the darkroom

4   Be able to review own photographic darkroom production work.

Unit content

1 Be able to create photographic negatives in the darkroom

Film: types and characteristics eg negative, transparency, different film stocks, spectral sensitivity, speed, grain, contrast; handling eg exposure, filtration

Techniques: equipment eg daylight processing tanks, deep tanks, dishes, machines; chemistry eg developer types (fine grain, speed increasing, acutance, lith); processing stages eg development, stop, fix, wash, dry; controls eg time, temperature, agitation, dilution, push processing, pull processing; processed film technical evaluation eg density, contrast, common faults; health and safety eg COSHH, risk assessment, risk minimisation

2 Know about the services provided by colour laboratories

Services: film processing eg transparency, negative, monochrome, colour; printing eg monochrome, colour, fine art, exhibition, bulk, duplicates, inter-negatives, hand printing, machine printing, mounting, retouching; requirements eg C41, E6, cross-processing, push/pull processing, clip-tests, print size, finishing

3 Be able to create photographic prints in the darkroom

Paper: types and characteristic eg fibre-based, resin-coated, graded, variable grade, tone; handling eg exposure, filtration

Techniques: equipment eg enlarger types, filtration, daylight processing tanks, deep tanks, dishes, machines; chemistry eg developer types (warm tone, lith); processing stages eg development, stop, fix, wash, dry; controls eg time, temperature, agitation, dilution; modification during exposure eg contrast control, dodging, masking, shading, double exposure; applied techniques eg pre-flashing, water baths, painting with developer or fixer, archival processing, sabattier effect; simple after-processes eg toners, bleaches, hand colouring, retouching; processed print technical evaluation eg density, contrast, common faults; health and safety eg COSHH, risk assessment, risk minimization

4 Be able to review own photographic darkroom production work

Production process: reflection eg ideas generation, ideas refinement, fitness of preparations, information sources, self-evaluation, peer evaluation

Product: reflection eg creative intention, research sources, aesthetic qualities, technical qualities, technical competence

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	**To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:**	**To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:**
P1 apply photographic darkroom techniques to produce monochrome negatives [RL, IE, CT]	**M1** apply effectively, photographic darkroom techniques to produce monochrome negatives that realise creative intentions	**D1** apply independently, photographic darkroom techniques skillfully to produce monochrome negatives that fully realise creative intentions
P2 describe the services provided by photographic processing laboratories [IE]	**M2** evaluate the services provided by photographic processing laboratories	**D2** analyse the services provided by photographic processing laboratories in detail using correct technical language
P3 apply photographic darkroom techniques to produce monochrome prints [RL, IE, CT]	**M3** apply photographic darkroom techniques consistently to produce monochrome prints that realise creative intentions	**D3** apply photographic darkroom techniques independently to produce monochrome prints that fully realise well refined creative intentions
P4 describe own use of photographic darkroom techniques in making photographic work. [RL, CT, EP]	**M4** evaluate own use of photographic darkroom techniques in making own photographic products with considered reflection on the production process.	**D4** analyse own use of photographic darkroom techniques in making own photographic products with informed reflection on the production process.

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

For this unit learners should have access to appropriate photographic darkroom equipment, chemistry facilities and media to create monochrome negatives and prints. Learners will also need access to equipment and chemistry facilities for simple after processes and print finishing.

To explore darkroom equipment and techniques learners need exposed monochrome film suitable for processing and printing. Assignments 1, 3 and 4 in the outline learning plan highlight a delivery structure that will allow learners to explore darkroom applications against set themes. The contribution that traditional film-based darkroom processes can make to the final outcome will be better appreciated if learners are encouraged to generate ideas with some clarity about the look of the final outcome. An awareness of the health and safety requirements of working in the darkroom environment should be emphasised. To enable learners to undertake their tasks safely, tutors need to emphasise the importance of health and safety when working in the darkroom and adhering to the appropriate COSHH guidance.

To be able to create photographic negatives in the darkroom, learners need to use specialist equipment and apply photographic film processing techniques. Tutors deliver underpinning theory and demonstrate the techniques associated with film and film processing. At first learners should be encouraged to explore a small selection of film types and handle them with consistency. As learners develop confidence and skill in applying darkroom techniques to known materials they can explore techniques further by manipulating controls during processing. Learners should use sketchbooks to record their findings when processing film, recording technical data and using equipment. Learners should also use their sketchbooks to annotate and review their independent research on film, darkroom equipment and film processing techniques. Tutors should develop an approach of continual evaluation in which learners are encouraged to review and reflect on their progress in using film processing techniques. Learners should be encouraged to use the correct technical language when evaluating their work and that of others to develop their technical vocabulary.

For assignment 2, learners should do independent research on the services provided by photographic processing laboratories and how these may contribute to their own photographic practice. Photographic processing laboratory websites are useful here. Tutors need to guide learners to appropriate technical information such as manufacturers' data sheets and articles in photographic periodicals to enable learners to place these services in a professional context. Learners should collate their annotated researched information in their sketchbooks

Tutors need to deliver the underpinning theory related to making photographic prints and demonstrate print processing techniques. At first tutors will need to review learners' work in progress frequently to enable learners to reflect on the technical qualities of their work and refine their printing to an appropriate technical standard. As learners develop their skills and confidence in making prints in the darkroom they will be able to apply further techniques and explore simple after processes.

Learners should be encouraged to reflect on their printing in terms of aesthetic qualities and fitness for purpose. Learners should use sketchbooks to record their findings when undertaking print processing. Learners should also use their sketchbooks to annotate and review their independent research on film, darkroom equipment and film processing techniques. Tutors should develop an approach of continual review in which learners are encouraged to reflect on their progress in using print processing techniques; this will raise learners' awareness of their own work and their personal working practice. When reviewing their photographic darkroom production work, learners need to reflect on the process used and the final product. Learners should be able to describe, through workbook and oral presentation, their own use of photographic film, paper and darkroom techniques. Learners should review their work from aesthetic and technical perspectives.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Introduction to unit and structure of the programme – whole class.
Introduction to films, associated equipment, processing techniques and safe darkroom practice – whole class.
Introduction to printing paper, associated equipment, processing techniques and safe darkroom practice – whole class.
Assignment 1: Found Alphabet – Shapes in the Environment Learners photograph on location to generate negatives for processing and printing. Specified film type, film processing and print techniques. Learners prepare their individual sketchbooks to include: • annotated research material about negative and print materials • annotated research material about health and safety necessary working practices • annotations of own work, including work in progress and technical data • examples of published photography used for ideas generation • own negatives and prints.
Assignment 2: Photographic Processing Laboratory Services Learners work individually or in small groups to research and identify services. Learners prepare their individual sketchbooks to include: • research information about services provided • review a potential of services to support professional work practices.
Assignment 3: Journey Learners photograph on location to generate negatives for processing and printing. Negotiated film type, processing and print techniques. Learners prepare their individual sketchbooks to include: • annotated research material about negative and print materials • annotated research material about health and safety necessary working practices • annotations of own work, including work in progress and technical data • examples of published photography used for ideas generation • own negatives and prints.

Assignment 4: Time and Motion

Learners photograph on location to generate negatives for processing and printing. Negotiated film type, manipulated film processing, simple after processing.

Learners prepare their individual sketchbooks to include:

- annotated research material about negative and print materials

- annotated research material about health and safety necessary working practices

- annotations of own work, including work in progress and technical data

- examples of published photography used for ideas generation

- own negatives and prints.

Assessment

For P1, learners must produce monochrome negatives in the darkroom safely. The negative material produced may only partially realise intentions, for example negatives may have a few processing marks caused by insufficient agitation during processing.

For P2, learners should list the services provided by photographic processing laboratories in their sketchbooks with reference to researched material published on websites.

For P3, learners will use materials, equipment and techniques in the darkroom to produce photographs with partially realise creative intentions. For example, learners may need support to achieve prints with an appropriate contrast, printing techniques used may be restricted to simple burning and dodging, and after processing may be limited to toning. Sketchbook evidence should include annotated research information about film types, paper types and developers. Records of learners' findings from their own photographic darkroom practical exploration should also be included. Learners must also demonstrate an understanding of health and safety implications of darkroom working.

For P4, learner descriptions of their own use of photographic darkroom techniques in making their own photographic products should be accurate but may be literal, for example sketchbook annotations and findings may be limited to descriptions of technical data and simple reiteration of the processes. Learners should describe their own photographic darkroom work with some reference to technical and aesthetic qualities and show some awareness of the potential for further exploration and use of darkroom manipulative techniques.

For M1, learners should apply photographic darkroom techniques to produce monochrome negatives that realise creative intentions. Learners should correctly process negatives to finality and use of manipulative techniques during processing, for example push/pull processing, with some success. Learner exploration of materials should show initiative in selection and application of techniques. at For M2, learners need to provide clear descriptions photographic processing laboratories which include the relevant features of the majority of services available.

For M3, learners should apply photographic darkroom techniques consistently. Learners should need only limited support after the initial stages of unit delivery to achieve prints that realise creative intentions. Sketchbook evidence should show some initiative in the selection of film types, paper types, equipment and developers researched.

For M4, typically records of learners' findings from their own photographic darkroom practical exploration should include review and comparison of technical data and experiences with different material types and processes for different purposes. Learner discussion of their own use of photographic darkroom techniques should demonstrate considered reflection on the production process with clear references made to areas for improvement and the potential for further exploration and use of darkroom manipulative techniques.

For D1, learners should apply photographic darkroom techniques skilfully, producing monochrome negatives that fully realise creative intentions. Negatives should be processed skilfully with no evidence of faults associated with processing evident in negatives finally submitted for assessment. Sketchbook evidence may show careful evaluation of films processed, for example with evidence of early analysis of processing faults being used to inform revised practices. Learners should explore and successfully use manipulative techniques. Typically selection and exploration of materials will demonstrate initiative, be extensive and be linked to well-considered creative intentions.

For D2, learners should analyse the services provided by photographic processing laboratories in detail, using correct technical language. All relevant features of the available services should be explored.

For D3, learners should apply photographic darkroom techniques skillfully to produce monochrome prints. Techniques included may be those that require careful management such as pre-flashing and double exposure. Skilful application of technique may equally well be demonstrated through excellent control of contrast range or sensitive use of continuous tone lith printing techniques to fully realise well refined creative intentions. Sketchbook annotations and research evidence must show a significant level of initiative and consideration in the selection of film types, paper types, equipment and developers.

For D4, typically records of learners' findings from their own photographic darkroom practical exploration should include perceptive analysis when comparing technical data and experiences. Learner explanations of their own use of photographic darkroom techniques should be perceptive and demonstrate well considered reflection on the production process. References to areas for improvement in their own work should be perceptive and linked to examples of researched published materials which informed creative intentions.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, M1, D1 P3, M3, D3 P4, M4, D4	**Assignment 1**: Found Alphabet – Shapes in the Environment	Photographer producing environmental publication cover incorporating title.	Photographs. Oral presentation and evaluation. Written evidence including annotations of research material in sketchbook.
P2, M2, D2	**Assignment 2**: Photographic Processing Laboratory Services	Photographer identifying most suitable processing services for own work.	Written evidence, including annotations of research material in sketchbook.
P1, M1, D1 P3, M3, D3 P4, M4, D4	**Assignment 3**: Journey	Photographer producing images for tour article.	Photographs. Oral presentation and evaluation. Written evidence, including annotations of research material in sketchbook.

Criteria covered	Assignment title	Scenario	Assessment method
P1, M1, D1 P3, M3, D3 P4, M4, D4	**Assignment 4**: Time and Motion	Photographer producing images for sport activity.	Photographs. Oral presentation and evaluation. Written evidence, including annotations of research material in sketchbook.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Art and Design sector suite. This unit has particular links with the following unit titles in the BTEC Art and Design suite:

Level 1	Level 2	Level 3
Introduction to Photography	Photography Techniques	Photographic Media, Techniques and Technology
Introduction to Photographic Image Making	Creative Photography	Location Photography
		Studio Photography

Essential resources

Learners require access to a photographic darkroom, enlargers, film and paper processing chemicals and equipment.

Employer engagement and vocational contexts

Centres should develop links with practising photographers to deliver assignments to learners or to provide work experience.

Links with employers are essential to the delivery of the programme for work experience and future employment.

Vocational learning support resources:

● Learning and Skills Network – www.vocationallearning.org.uk

Business and finance advice:

● local and regional Business Link – www.businesslink.gov.uk

Assignments should be vocationally relevant; centres should consider the delivery of 'live projects', for example, to support the vocational content of the unit and programme.

Skillset, the Sector Skills Council for Creative Media (www.skillset.org), provides details on its photo pages (www.skillset.org/photo) on careers and industry and has a regularly updated news and events page.

Indicative reading for learners

Textbooks

Anchell S – *The Darkroom Cookbook* (Focal Press, 2008) ISBN 978-0240810553

Faris-Belt A – *The Elements of Photography: Understanding and Creating Sophisticated Images* (Focal Press, 2008) ISBN 978-0240809427

Freeman M – *The Photographer's Eye: Composition and Design for Better Digital Photos* (Focal Press, 2007) ISBN 978-0240809342

Hirsch R – *Photographic Possibilities: The Expressive Use of Equipment, Ideas, Materials and Processes* (Focal Press, 2008) ISBN 978-0240810133

Ingledew J – *Photography (Portfolio Series)* (Laurence King, 2005) ISBN 978-1856694322

Kobre – *Photojournalism: The Professionals' Approach* (Focal Press, 2008) ISBN 978-0750685931

Langford M, Fox A and Sawdon Smith R – *Langford's Basic Photography: The Guide for Serious Photographers, 8th Edition* (Focal Press, 2007) ISBN 978-0240520353

Peres M – *The Focal Encyclopedia of Photography, 4th edition* (Focal Press, 2007) ISBN 978-0240807409

Salvaggio N – *Basic Photographic Materials and Processes, 3rd Edition* (Focal Press, 2009) ISBN 978-0240809847

Stoppee B and Stoppee J – *Stoppees' Guide to Photography and Light* (Focal Press, 2008) ISBN 978-0240810638

Zakia R – *Perception and Imaging: Photography – A Way of Seeing* (Focal Press, 2007) ISBN 978-0240809304

Journals

British Journal of Photography – Incisive Media

Digital Photo – EMAP

Practical Photography – EMAP

Websites

www.hse.gov.uk

www.hse.gov.uk/coshh

www.opsi.gov.uk

www.skillset.org

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	researching and exploring film, paper, techniques, published photography and photographic laboratory services
Creative thinkers	engaged in research activities for their own photographs considering the suitability of selected photographic materials, equipment and techniques
Reflective learners	considering the suitability of selected photographic media and techniques describing their own use of photographic work
Team workers	collaborating in small groups to discuss photographic laboratory services
Self-managers	managing time and resources when involved in pre-production and production of their own photographs
Effective participators	working in groups to review work.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Reflective learners	evaluating their work through structured critical review and using outcomes of review to inform future progress
Self-managers	seeking new challenges and demonstrating flexibility and responsiveness.

● Functional Skills – Level 2

Skill	When learners are …
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	researching examples of laboratory photographic services
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching examples of photographic techniques and written information
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presenting work and explaining photographic techniques used
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	sourcing information about darkroom techniques sourcing information on health and safety sourcing information about photographic laboratories
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	compiling technical information about health and safety working practices writing up notes about darkroom processes.