Unit 28: Undertake Repoussé and Other Decorative Skills for Blacksmithing and Metalworking

Unit reference number: K/602/0725

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

Aim and purpose

This unit aims to introduce learners to the skills and knowledge for repoussé, other decorative work and blacksmithing conservation, and how these can be applied in practice. Learners will also be introduced to the history of blacksmithing. This unit is designed for learners in centre-based settings looking to progress into the sector or on to further/higher education.

Unit introduction

Blacksmithing is an ancient craft that still has significant relevance in the modern world and the modern blacksmith often has the opportunity to work on the repair, conservation or replication of historical ironwork from different periods of history. This unit will introduce learners to an appreciation of the development of the craft and its aesthetic progression over the centuries.

Learning outcomes 1 and 2 cover repoussé techniques and decorative skills. Learners will develop the craft processes and knowledge of repoussé and other specialised decorative skills. Learners will work independently to the exacting standards of other professionals and customer requirements.

Learning outcome 3 looks at the techniques of blacksmithing conservation. Learners will develop their experience of the range of processes used in the craft of the blacksmith, for example when producing work for blacksmithing restoration purposes. The important skills and knowledge requirements of researching and recording information as an essential component of the successful restoration of historical artefacts will also be addressed. The differing aspects of conservation and preservation will be discussed in relation to issues such as the historical significance of forged artefacts.

Learning outcome 4 covers the history of decorative ironwork. The use and production of specialised tooling for the production of repoussé and decorative elements is covered in relation to materials and processes that were used within the traditional context.

Learning outcomes

On completion of this unit a learner should:

1 Be able to use repoussé techniques

2 Be able to employ decorative skills

3 Know the techniques of blacksmithing restoration

4 Understand the history of decorative ironwork.

Unit content

1 Be able to use repoussé techniques

Repoussé: uses of the technique eg motifs, masks, shells, weathervanes, coats of arms, figurative; materials eg iron, steel, copper, brass, aluminium; methods eg stake, pitch block, lead block, annealing; tools and equipment eg punches, chasing tools, horns and sand bags; health and safety; personal protective equipment (PPE); risk assessment

2 Be able to employ decorative skills

Decorative: element types eg complex scroll forms, rosettes, twists, leaves (water, blown back, bevel, acanthus faced, acanthus cupped, heavy incised); figurative eg animals, birds; methods eg appliqué, piercing, chasing, chiselling; health and safety

3 Know the techniques of blacksmithing conservation

Blacksmithing conservation: methods and principles; materials; record keeping; corrosion control eg materials, methods, electrochemical series, coatings; researching eg process, heritage organisations

4 Understand the history of decorative ironwork

Historical heritage of the blacksmith's craft: perspective from 1000 AD to the present day eg aesthetic periods, architectural periods; materials eg types, modes of supply; blacksmithing methods used during different historical periods; context eg functional, decorative

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 carry out repoussé techniques to meet given objectives	**M1** select and combine repoussé techniques and decorative skills to produce a complex artefact that is fit for purpose with appropriate construction and corrosion control	**D1** evaluate the repoussé techniques and decorative skills used to produce a complex artefact making appropriate recommendations for improvement.
P2 produce repoussé punches to meet given specification		
P3 produce repoussé stakes to meet given specification [CT]		
P4 produce cupped repoussé work to meet given specification		
P5 produce faced repoussé work to meet given specification		
P6 produce an element with attached repoussé work to meet given specification [EP, SM]		
P7 describe techniques of blacksmithing conservation for given scenarios	**M2** explain the development of decorative and functional forged ironwork for a specified architectural period in Europe.	
P8 describe techniques of corrosion control for given scenarios		
P9 discuss the architectural periods for ironwork in Britain from 1000 AD to the present day. [IE]		

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

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical assessments, written assessment, visits to suitable collections and will have links to industrial experience placements.

Tutors delivering this unit have opportunities to use as wide a range of techniques as possible. Lectures, discussions, seminar presentations, heritage garden visits, internet and/or library-based research and the use of personal and/or industrial experience would all be suitable. Delivery should stimulate, motivate, educate and enthuse learners.

Work placements should be monitored regularly in order to ensure the quality of the learning experience. It would be beneficial if learners and supervisors were made aware of the requirements of this unit prior to any work-related activities so that naturally occurring evidence can be collected at the time. For example, learners may have the opportunity to restore a blacksmithing artefact and they should be encouraged to ask for observation records and/or witness statements to be provided as evidence of this. Guidance on the use of observation records and witness statements is provided on the Pearson website.

Visiting expert speakers could add to the relevance of the subject for learners. For example, a forge worker could talk about their work, the situations they face and the methods they use.

Whichever delivery methods are used, it is essential that tutors stress the importance of sound environment management and the need to manage the resource using approved methods.

Health and safety issues relating to working in the forge environment must be covered and regularly reinforced, and risk assessments must be undertaken before practical activities take place. Adequate PPE must be provided and used following the production of suitable risk assessments.

Tutors should consider integrating the delivery, private study and assessment for this unit with other relevant units and assessment instruments learners are taking as part of their programme of study.

Learning outcomes 1 and 2 cover repoussé techniques and decorative skills. Learners should be encouraged to develop a cohesive approach to the making process across all the learning outcomes by producing more complex blacksmith constructions relevant to specified historical periods. Explanation and demonstration should be followed by opportunities for learners to practise and develop their techniques and finish quality. As learners become more competent in individual techniques they should be encouraged to design artefacts requiring the use of several techniques based on traditional forms. Differing sections and sizes of metals should be used to produce tooling and artefacts in order for the learners to have as broad as possible an experience of the elements. Non-ferrous materials should also be used as appropriate. Delivery is likely to be in the form of formal lectures, demonstration, supervised workshop sessions, site visits and independent learner research.

Learning outcome 3 looks at the techniques of blacksmithing restoration. Where appropriate the learners should be exposed to examples of historical decorative ironwork that could potentially benefit from restoration techniques; these examples could be used by the learners to prepare a proposal for blacksmithing restoration. Delivery is likely to be in the form of formal lectures, seminars, demonstration, supervised workshop sessions, site visits and independent learner research.

Learning outcome 4 covers the history of decorative ironwork. Learners should be exposed to a series of lectures, historical and museum visits that illustrate the broad development of ironwork over the last millennium with particular reference to function and decorative styles in the UK and Europe. Delivery is likely to be in the form of formal lectures, demonstration, supervised workshop sessions, site visits and independent learner research.

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 gives **an indication of the volume of learning it would take learners** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment
Introduction and overview of the unit.
Assignment 1: Practical Repoussé Techniques (P1, P2, P3, P4, P5, P6, M1, D1) Tutor introduces the assignment brief. Development of repoussé techniques and skills.
Learner assessment/feedback.
Assignment 2: Blacksmithing Conservation (P7, P8) Tutor introduces the assignment brief. Learners investigate conservation techniques and issues. Methods; records; corrosion control.
Student assessment/feedback.
Guest speaker, workshop/site visits.
Assignment 3: History of Decorative Ironwork (P9, M2) Tutor introduces the assignment brief. Historical heritage of the blacksmith's craft.
Learner assessment/feedback.
Guest speaker, workshop/site visits.
Unit review.

Assessment

For P1, P2 and P3, learners must carry out repoussé techniques to meet given objectives/specification. Tutors should identify the objectives/specification or agree these through discussion with learners. Where possible, to ensure fairness of assessment, the size and complexity of the tasks should be the same for all learners. These could be assessed directly by the tutor during practical activities. If this format is used then suitable evidence from guided activities would be observation records completed by learners and the tutor and accompanied by appropriate worklogs or other relevant learner notes. If assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor.

For P4, P5 and P6, learners must demonstrate decorative skills to meet the given specification. Tutors should identify the specification or agree this through discussion with learners. Evidence could be in a similar format to that suggested for P1.

For P7 and P8, learners must describe techniques of blacksmithing conservation for given scenarios. Tutors should identify the scenarios or agree them through discussion with learners. Evidence could take the form of a pictorial presentation with notes (possibly using appropriate software or an overhead projector), an

annotated poster or a project.

For P9, learners must discuss the architectural periods for ironwork in Britain from 1000 AD to the present. Evidence could take the form of a pictorial presentation with notes (possibly using appropriate software or an overhead projector), an annotated poster or a project.

For M1, learners must select and combine repoussé techniques and decorative skills to produce a complex artefact that is fit for purpose with appropriate construction and corrosion control. Where possible, to ensure fairness of assessment, the complexity of the tasks should be the same for all learners.

M1 could be assessed directly by the tutor during practical activities. If this format is used then suitable evidence from guided activities would be observation records completed by learners and the tutor and accompanied by appropriate worklogs or other relevant learner notes. If assessed during a placement, witness statements should be provided by a suitable representative and verified by the tutor.

For M2, learners must explain the development of decorative and functional forged ironwork for a specified aesthetic, architectural period or maker/designer. Tutors should identify the subject or agree it through discussion with learners. Where possible, to ensure fairness of assessment, the size and complexity of the tasks should be the same for all learners. Evidence could take the form of a pictorial presentation with notes (possibly using appropriate software or an overhead projector), an annotated poster or a project.

For D1, learners must evaluate the repoussé techniques and decorative skills used to produce a complex artefact, making appropriate recommendations for improvement. Evidence could take the form of a pictorial presentation with notes (possibly using appropriate software or an overhead projector), an annotated poster or a project. Recommendations for improvement must be appropriate and viable, these could be identified during the making process. Where appropriate, improvements to making quality should be demonstrated within the components/artefacts produced. The artefact and specification may be the same as those used to provide evidence for other grading criteria.

Programme of suggested assignments

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

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, P5, P6, M1, D1	Practical Repoussé Techniques	You need to plan, and undertake a design project using practical repoussé techniques.	Practical design. Observation evidence. Work logs or other relevant learner notes and drawings.
P7, P8	Blacksmithing Conservation	You have been asked to submit an article on blacksmithing conservation.	Assignment.
P9, M2	History of Decorative Ironwork	You have been asked to submit an article on the history of decorative ironwork.	Assignment. Finished articles.

Links to other BTEC units

This unit forms part of the BTEC land-based sector suite. This unit has particular links with:

Level 2	Level 3
	Understanding and Using Forging Techniques for Blacksmithing and Metalworking
	Undertake Drawing Practice for Blacksmithing and Metalworking
	Business Management for Land-based Industries
	Undertake Forge Practice for Blacksmithing and Metalworking
	Undertake Blacksmithing Processes
	Understanding and Using Blacksmithing and Construction Skills
	Understanding and Using Blacksmithing Installation Skills
	Undertake Fabrication Drawing for Blacksmithing and Metalworking

Essential resources

Learners will need access to a sufficiently diverse range of materials and stock sizes/sections, eg mild steel, tool steels, alloys, both ferrous and non-ferrous copper, bronze, brass, stainless steel, aluminium.

Workshops appropriate to learners' specialist pathways will be needed. These should contain a comprehensive range of blacksmithing and forge tools, including solid fuel forge hearths, anvils, leg vices, power hammers supported by a range of tongs, hammers, swages, fullers and other ancillary equipment. Access to an appropriate site evaluation/fixing environment supported by the equipment necessary, including measuring, fixing and installation equipment, is also required.

Areas for fitting and finishing should be available, with access to suitable application and coating facilities. Drawing offices and classrooms are also a requirement to allow for the delivery and development of the specific knowledge and specifications for the unit.

Health and safety considerations require sufficient facilities, be provided, to allow for one forging station per learner. Additional health and safety information and support should be provided.

Learners should have access to sufficient library and information technology facilities to enable them to research techniques, materials, equipment, examples of historical decorative ironwork and existing work examples.

Tutors delivering this unit should have vocationally specific craft knowledge.

Delivery of personal, learning and thinking skills (PLTS)

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	discussing the architectural periods for ironwork in Britain from 1000 AD to the present
Creative thinkers	carrying out repoussé techniques to meet given objectives
Reflective learners	evaluating the repoussé techniques and decorative skills used to produce a complex artefact making appropriate recommendations for improvement
Self-managers	producing faced repoussé work to meet given specification.
Effective participators	

Although PLTS opportunities 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 ...
Team workers	selecting and combining repoussé techniques and decorative skills to produce a complex artefact that is fit for purpose with appropriate construction and corrosion control .