



Higher National Unit Specification

General information

Unit title: Stringed Instruments: Machine Woodworking
(SCQF level 7)

Unit code: HN7R 34

Superclass: LJ

Publication date: June 2107

Source: Scottish Qualifications Authority

Version: 01

Unit purpose

This unit is designed to develop the skills and knowledge required to operate woodworking machines that can be utilised by luthiers. Learners will develop their knowledge and understanding of machine setup and function. They will then use a range of machines in the production of selected items used in the construction of musical instruments.

Learners will explore the use of woodworking machines to develop accuracy, speed and consistency. Machine production methods will further develop practical skills and allow for the rationalisation of working methods pertinent to those found in a small workshop situation.

This is an optional unit within the Higher National Certificate in Stringed Musical Instrument Making and Repair (SCQF level 7). This unit is suitable for learners in education and from industry who wish to extend their knowledge and practical application of repair techniques.

Outcomes

On successful completion of the unit the learner will be able to:

- 1 Demonstrate a knowledge and understanding of sawing, planing and sanding machines and their functions.
- 2 Safely set up and use a range of sawing, planing and sanding machines.
- 3 Accurately machine instrument making jigs and /or instrument components.

Higher National Unit Specification: General information (cont)

Unit title: Stringed Instruments: Machine Woodworking
(SCQF level 7)

Credit points and level

1 National Unit credit at SQF level 7: (8 SCQF credit points at SCQF level 7)

Recommended entry to the unit

While entry is at the discretion of the centre, this unit is aimed at learners who have achieved *Stringed Instruments: Woodworking Machinery* (SCQF level 5), *Stringed Instruments: Manufacture of Jigs and Templates* (SCQF level 5) and those working at an equivalent level who wish to enhance their skills and knowledge.

Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the support notes for this unit specification.

There is no automatic certification of Core Skills or Core Skill components in this unit.

Context for delivery

If this unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes.

Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

Higher National Unit Specification: Statement of standards

Unit title: Stringed Instruments: Machine Woodworking
(SCQF level 7)

Acceptable performance in this unit will be the satisfactory achievement of the standards set out in this part of the unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Demonstrate a knowledge and understanding of sawing, planing and sanding machines and their functions.

Knowledge and/or skills

- ◆ Band re-saw
- ◆ Circular rip saw
- ◆ Crosscut saw
- ◆ Panel saw
- ◆ Surface planer
- ◆ Bobbin sander
- ◆ Disc sander
- ◆ Machine feed arrangements
- ◆ Machine accessories

Outcome 2

Safely set up and use a range of sawing, planing and sanding machines.

Knowledge and/or skills

- ◆ Machine set up
- ◆ Machine operation
- ◆ Machine safety
- ◆ Feed mechanisms, guards and accessories

Outcome 3

Accurately machine instrument making jigs and /or instrument components.

Knowledge and/or skills

- ◆ Machine operation
- ◆ Machine safety
- ◆ Layout skills
- ◆ Wastage

Higher National Unit Specification: Statement of standards (cont)

Unit title: Stringed Instruments: Machine Woodworking
(SCQF level 7)

Evidence requirements for this unit

Learners will need to provide evidence to demonstrate their knowledge and/or skills across all outcomes by showing that they can:

Outcome 1

- ◆ correctly identify six machines and their functions.
- ◆ correctly describe the purpose of the identified machine accessories and feed arrangements.

The learner could provide written and/or oral evidence using correct terminology to identify and describe machine function, machine parts and accessories and feed arrangements.

Outcome 2

- ◆ correctly setup and operate machines.
- ◆ correctly utilize feed mechanisms, guards and accessories.
- ◆ work safely.

A checklist could be used to evidence the practical work and that health and safety requirements have been maintained.

Outcome 3

- ◆ prepare materials for machining.
- ◆ accurately machine instrument making jigs and /or instrument components.

A checklist could be used to evidence the practical work and that health and safety requirements have been maintained.



Higher National Unit Support Notes

Unit title: Stringed Instruments: Machine Woodworking
(SCQF level 7)

Unit Support Notes are offered as guidance and are not mandatory.

While the exact time allocated to this unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this unit

This unit is designed to develop skills and knowledge in relation to the function and operation of woodworking machines utilised by luthiers. This will enable the learner to augment instrument manufacturing skills in the context of a professional environment where time management and increased production are essential elements.

Emphasis should be given to machining methods utilised in small workshops where two to five instruments are built at a time. This might incorporate methods for machining single components, repeated production of a component or methods for producing jigs and moulds.

The machines are likely to include the following;

- ◆ Band re-saw
- ◆ Circular rip saw
- ◆ Crosscut saw
- ◆ Panel saw
- ◆ Surface planer
- ◆ Bobbin sander
- ◆ Disc sander
- ◆ Drum sander

Learners could produce individual or multiple instrument components using machines and/or produce jigs from a range or provide their own jig design for manufacture.

Jigs can include any of the following:

- ◆ Binding and purfling router jig
- ◆ Bridge slotting jig
- ◆ Bridge string hole drilling jig
- ◆ Headstock slotting jig
- ◆ Headstock drilling jig
- ◆ Truss rod routing jig
- ◆ Bridge shaping jig

Higher National Unit Support Notes (cont)

Unit title: Stringed Instruments: Machine Woodworking
(SCQF level 7)

- ◆ Headstock shaping jig
- ◆ Rosette routing jig
- ◆ Brace curvature jig
- ◆ Rosette making jig
- ◆ Fret slotting jig
- ◆ Gluing jigs
- ◆ Violin neck angle jig
- ◆ Violin neck orientation jig
- ◆ Violin plate holding jigs
- ◆ Violin joint preparation jig
- ◆ Violin plate purfling router jig
- ◆ Other devised jigs

Possible instrument components for machining could be from the following:

- ◆ Neck scarf joint
- ◆ Classical heel slots
- ◆ Heel and headstock shape
- ◆ Materials thickening

Guidance on approaches to delivery of this unit

This unit could be delivered in tandem or in sequence with the unit *Stringed Instruments: Jig Making* (SCQF level 7) which asks the learners to investigate and manufacture jigs that will help enhance the construction and manufacturing process.

Guidance on approaches to assessment of this unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

The assessment for Outcome 1 could be a written and/or oral test. In Outcomes 2 and 3 a checklist could be used to evidence the practical work and that health and safety requirements have been maintained.

Higher National Unit Support Notes (cont)

Unit title: Stringed Instruments: Machine Woodworking
(SCQF level 7)

Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the evidence requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at www.sqa.org.uk/e-assessment.

Opportunities for developing Core and other essential skills

Learners will develop core skills in problem solving while setting up and operating machinery and team work as they negotiate sharing the machine shop.

History of changes to unit

Version	Description of change	Date

© Scottish Qualifications Authority 2017

This publication may be reproduced in whole or in part for educational purposes provided that no profit is derived from reproduction and that, if reproduced in part, the source is acknowledged.

Additional copies of this unit specification can be purchased from the Scottish Qualifications Authority. Please contact the Business Development and Customer Support team, telephone 0303 333 0330.

General information for learners

Unit title: Stringed Instruments: Machine Woodworking (SCQF level 7)

This section will help you decide whether this is the unit for you by explaining what the unit is about, what you should know or be able to do before you start, what you will need to do during the unit and opportunities for further learning and employment.

In most cases you will have achieved *Stringed Instruments: Woodworking Machinery* (SCQF level 5).

In this unit you will learn to setup and operate sawing, planing and sanding machines which might be utilised in a small professional workshop environment. Emphasis will be given to machining methods utilised to build two to five instruments at a time. This might incorporate methods for machining single components, repeated production of a component or methods for producing jigs and moulds.

You will learn about the accessories, fixtures and accessories that apply to each machine and then you will produce instrument making jigs and /or instrument components. You will also learn about the safety requirements applicable when using these machines.

You will be assessed on your knowledge and ability to identify and describe machine function, machine parts and accessories and feed arrangements. You will also be assessed on your ability to accurately machine instrument making jigs and/or instrument components and work safely.