



City & Guilds Level 3

Diplomas in Furniture Restoration, Installation, Design & Making, Furnishings and Wood Machining (5780)

Version 2.6 (September 2024)

Qualification Handbook

Qualification at a glance

Subject area	Manufacturing technologies
City & Guilds number	5780
Age group approved	16+
Entry requirements	None
Assessment	Centre devised assignment, short answer, online multiple choice
Grading	Pass/Fail
Approvals	Fast track approval
Support materials	Developing centre devised assessments, generic grading criteria, assessor guidance
Registration and certification	Consult the Walled Garden/Online Catalogue for last dates

Title and level	City & Guilds qualification number	Regulatory reference number	GLH	TQT
City & Guilds Level 3 Diploma in Furniture Design & Making	5780-30	600/1978/5	615	840
City & Guilds Level 3 Diploma in Furnishings - Mattress Making	5780-31	600/3200/5	na	na

Title and level	City & Guilds qualification number	Regulatory reference number	GLH	TQT
City & Guilds Level 3 Diploma in Furnishings – Traditional Upholstery	5780-31	600/3197/9	723	960
City & Guilds Level 3 Diploma in Furnishings – Modern Upholstery	5780-31	600/3198/0	563	780
City & Guilds Level 3 Diploma in Wood Machining	5780-32	600/3206/6	478	600
City & Guilds Level 3 Diploma in Wood Machining – CNC Machines	5780-32	600/3205/4	417	550
City & Guilds Level 3 Diploma in Furniture Installation	5780-33	600/1977/3	326	440
City & Guilds Level 3 Diploma in Furniture Restoration	5780-34	600/2340/5	405	530

Version and date	Change detail	Section
2.0 April 2013	Corrected titling of pathway qualification (5780-31) and Units 301/315/318	Structure/ Units
2.1 March 2017	Centre devised guidance	Assessment
2.4 August 2017	Added TQT details Deleted QCF	Qualification at a glance, Structure Throughout
2.5 April 2022	TQT details updated	Qualification at a glance, Structure
2.6 September 2024	Handbook reviewed and updated to new template	Throughout

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Unit 305 Environmental management and waste management in woodmachining	103
Unit 306 Finishing methods in furniture restoration.....	109
Unit 307 Furniture restoration	113
Unit 308 Manage the production of wood-based components using machines.....	118
Unit 309 Manufacturing wood-based components using CNC machines	123
Unit 310 Manufacturing wood-based components using profiling machines.....	128
Unit 311 Produce drawings using CAD	132
Unit 312 Production planning in furniture and furnishing making	135
Unit 313 Prototype design in furniture making	139
Unit 314 Prototype design in modern upholstery	143
Unit 315 Research and product design in furniture making.....	147
Unit 316 Research and product development for modern furniture upholstery	150
Unit 317 Restoration of traditional furniture upholstery.....	154
Unit 318 Site survey for furniture installation	158
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Introduction

This document tells you what you need to do to deliver the qualifications:

Area	Description
Who are the qualifications for?	These qualifications are ideal for anyone who is working in, or wants to work, in the furniture, furnishings and wood machining industry.
What do the qualifications cover?	These qualifications allow candidates to learn, develop and practice the skills required for employment and/or career progression in the Furniture Making sector.
What opportunities for progression are there?	Candidates may be able to pursue any of the following opportunities for progression: <ul style="list-style-type: none">• Continue to develop craft and technical skills and experience in Upholstery & Soft Furnishings and striving to “be the best” in their chosen occupational route and have pride in their work.• Participate in relevant in-house company training or external learning, where available and/or offered.• Broaden and develop their skill base by progression into other job roles within the Furniture industry – “horizontal progression”.• Progress into higher level jobs within the Furniture industry such as Team Leader/Supervisor, or into other functional areas such as design, marketing, sales, planning, procurement, finance or warehouse and distribution.• Undertake a related Engineering Apprenticeship.• Undertake a Higher/Advanced Diploma in Manufacturing and Product Design, Construction and the Built Environment or the Creative and Media.• Undertake Assessor and Verifier qualifications.• Undertake further training in Management & Leadership, Lean Manufacturing or Business Improvement Techniques.• Progressing to an industry related undergraduate programme e.g. Engineering,

Area	Description
	Design or Business Studies. Entry may require additional training/learning.
Who did we develop the qualifications with?	Many of the Units have been endorsed by ProSkills. This endorsement is noted in each Unit where applicable.
Is it part of an apprenticeship framework or initiative?	These qualifications serve as a technical certificate in the Furniture, Furnishings and Interiors Apprenticeship framework.

Structure

To achieve the 5780-30 City & Guilds Level 3 Diploma in Furniture Design and Making, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve all **six** mandatory units (61 credits).

D/503/2151	210	Health and safety within furniture and furnishing making environments	3
T/503/2222	229	Sustainability in the timber trade	3
F/503/2188	301	Assemble furniture components by hand	9
M/503/2168	313	Prototype design in furniture making	24
T/503/2172	315	Research and product design in furniture making	12
F/503/2191	319	Supervision in a furniture and furnishing making environment	10

Optional units:

Learners must achieve **23** credits from the optional units.

Y/503/2214	205	Attaching doors, drawers and fittings in furniture making	3
T/503/2219	209	Hand finishing methods in furniture making	14
D/503/2215	228	Spray finishing in furniture making	20
K/503/2220	230	Technical drawings and workshop geometry	7
M/503/0422	311	Produce drawings using CAD	9
J/503/2161	312	Production planning in furniture and furnishing making	18

To achieve the 5780-31 City & Guilds Level 3 Diploma in Furnishings – Mattress Making, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve all **six** mandatory units (70 credits).

F/503/2224	203	Design schemes in furnishings	14
D/503/2151	210	Health and safety within furniture and furnishing making environments	3
R/503/2230	221	Mattress quilting operations	8
D/503/2229	223	Modern mattress making	6
D/503/2229	312	Production planning in furniture and furnishing making	18
F/503/2191	319	Supervision in a furniture and furnishing making environment	10
F/503/2207	321	Traditional mattress manufacture	11

Elective units:

Learners must achieve **33** credits from the elective units but they will not count towards achievement of the overall qualification.

M/503/0422	311	Produce drawings using CAD	9
J/503/2208	314	Prototype design in modern upholstery	24

To achieve the 5780-31 City & Guilds Level 3 Diploma in Furnishings – Traditional Upholstery, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve all **six** mandatory units (96 credits).

F/503/2224	203	Design schemes in furnishings	14
D/503/2151	210	Health and safety within furniture and furnishing making environments	3
L/503/2209	231	Traditional furniture upholstery	22
D/503/2229	312	Production planning in furniture and furnishing making	18
J/503/2161	317	Restoration of traditional furniture upholstery	29
F/503/2191	319	Supervision in a furniture and furnishing making environment	10

Elective units:

Learners must achieve **33** credits from the elective units but they will not count towards achievement of the overall qualification.

M/503/0422	311	Produce drawings using CAD	9
J/503/2208	314	Prototype design in modern upholstery	24

To achieve the 5780-31 City & Guilds Level 3 Diploma in Furnishings – Modern Upholstery, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve all **six** mandatory units (78 credits).

F/503/2224	203	Design schemes in furnishings	14
D/503/2151	210	Health and safety within furniture and furnishing making environments	3
K/503/2217	222	Modern furniture upholstery	13
D/503/2229	312	Production planning in furniture and furnishing making	18
F/503/2191	316	Supervision in a furniture and furnishing making environment	20
F/503/2191	319	Supervision in a furniture and furnishing making environment	10

Elective units:

Learners must achieve **33** credits from the elective units but they will not count towards achievement of the overall qualification.

M/503/0422	311	Produce drawings using CAD	9
J/503/2208	314	Prototype design in modern upholstery	24

To achieve the 5780-32 City & Guilds Level 3 Diploma in Wood Machining, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve **60** credits from the mandatory units.

D/503/2151	210	Health and safety within furniture and furnishing making environments	3
F/503/2238	214	Manufacturing wood-based components using powered tools	6
A/503/2237	216	Manufacturing wood-based components using sanding machines	6
T/503/2222	229	Sustainability in the timber trade	3
A/503/2240	305	Environmental management and waste management in woodmachining	6
J/503/2211	308	Manage the production of wood-based components using machines	15
J/503/2239	310	Manufacturing wood-based components using profiling machines	10
F/503/2210	322	Workflow management in woodmachining	11

To achieve the 5780-32 City & Guilds Level 3 Diploma in Wood Machining – CNC Machines, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve **all** the mandatory units (55 credits).

D/503/2151	210	Health and safety within furniture and furnishing making environments	3
T/503/2236	211	Manufacturing wood-based components using CNC machines	6
T/503/2222	229	Sustainability in the timber trade	3
A/503/2240	305	Environmental management and waste management in woodmachining	6
L/503/2212	309	Manufacturing wood-based components using CNC machines	17
M/503/0422	311	Produce drawings using CAD	9
F/503/2210	322	Workflow management in woodmachining	11

To achieve the 5780-33 City & Guilds Level 3 Diploma in Furniture Installation, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve all **five** mandatory units (35 credits).

D/503/2151	210	Health and safety within furniture and furnishing making environments	3
T/503/2222	229	Sustainability in the timber trade	3
H/503/2197	304	Design work for fitted furniture installation	11
K/503/2203	318	Site survey for furniture installation	11
M/503/2204	320	Supervision of fitted furniture installation	7

Optional units:

Learners must achieve **9** credits from the optional units.

M/503/0422	311	Produce drawings using CAD	9
T/503/2172	315	Research and product development in furniture making	12

To achieve the 5780-34 City & Guilds Level 3 Diploma in Furniture Restoration, learners must achieve:

Unit accreditation number	City & Guilds unit number	Unit title	Credits
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Mandatory units:

Learners must achieve all **three** mandatory units (35 credits).

D/503/2151	210	Health and safety within furniture and furnishing making environments	3
H/503/2152	302	Assessment of furniture restoration	13
M/503/2154	307	Furniture restoration	19

Optional units:

Learners must achieve **18** credits from the optional units.

Y/503/2214	205	Attaching doors, drawers and fittings in furniture making	3
T/503/2219	209	Hand finishing methods in furniture making	14
F/503/2174	220	Timber technology in furniture making	6
Y/503/2200	232	Veneering methods in furniture making	3
F/503/2188	301	Assemble furniture components by hand	9
T/503/2155	303	Decorative veneering in furniture making	11
F/503/2157	306	Finishing methods in furniture restoration	18

Total Qualification Time (TQT)

Total Qualification Time (TQT) is the number of notional hours which represents an estimate of the total amount of time that could reasonably be expected for a learner to demonstrate the achievement of the level of attainment necessary for the award of a qualification.

TQT comprises of the following two elements:

- 1) the number of hours that an awarding organisation has assigned to a qualification for guided learning

- 2) an estimate of the number of hours a learner will reasonably be likely to spend in preparation, study or any other form of participation in education or training, including assessment, which takes place as directed by – but, unlike guided learning, not under the immediate guidance or supervision of – a lecturer, supervisor, tutor or other appropriate provider of education or training.

Title and level	GLH	TQT
City & Guilds Level 3 Diploma in Furniture Design & Making	615	840
City & Guilds Level 3 Diploma in Mattress Making	n/a	n/a
City & Guilds Level 3 Diploma in Furnishings – Traditional Upholstery	723	960
City & Guilds Level 3 Diploma in Furnishings – Modern Upholstery	563	780
City & Guilds Level 3 Diploma in Wood Machining	478	600
City & Guilds Level 3 Diploma in Wood Machining – CNC Machines	417	550
City & Guilds Level 3 Diploma in Furniture Installation	326	440
City & Guilds Level 3 Diploma in Furniture Restoration	405	530

Centre requirements

Approval

Fast-track approval

If your centre was approved to offer the City & Guilds Making and Installing Furniture (5610) then you can apply for fast-track approval for the 5780 Diplomas using the fast-track approval form, available from the City & Guilds website.

Centres should use the fast-track form if:

- there have been no changes to the way the qualifications are delivered
- they meet all of the approval criteria in the fast-track form guidance notes.

Fast-track approval is available for 12 months from the launch of the qualification. After 12 months, centres will have to go through the standard Qualification Approval Process. The centre is responsible for checking that fast-track approval is still current at the time of application.

Resource requirements

Physical resources and site agreements

Centres can use specially designated areas within a centre to assess. The equipment, systems and machinery must meet industrial standards and be capable of being used under normal working conditions.

Centre staffing

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be occupationally competent or technically knowledgeable in the area(s) for which they are delivering training and/or have experience of providing training (this knowledge must be to the same level as the training being delivered)
- have recent relevant experience in the specific area they will be assessing
- have credible experience of providing training.

Continuing professional development (CPD)

Centres are expected to support their staff in ensuring that their knowledge remains current of the occupational area and of best practice in delivery, mentoring, training, assessment and quality assurance, and that it takes account of any national or legislative developments.

Quality assurance

Approved centres must have effective quality assurance systems to ensure optimum delivery and assessment of qualifications. Quality assurance includes initial centre approval, qualification approval and the centre's own internal procedures for monitoring quality. Centres are responsible for internal quality assurance and City & Guilds is responsible for external quality assurance. All external quality assurance processes reflect the minimum requirements for verified and moderated assessments, as detailed in the Centre Assessment Standards Scrutiny (CASS), section H2 of Ofqual's General Conditions. For more information on both CASS and City and Guilds Quality Assurance processes visit: the [What is CASS?](#) and [Quality Assurance Standards](#) documents on the City & Guilds website.

Standards and rigorous quality assurance are maintained by the use of:

- Internal quality assurance
- City & Guilds external quality assurance.

In order to carry out the quality assurance role, Internal Quality Assurers must

- have appropriate teaching and vocational knowledge and expertise
- have experience in quality management/internal quality assurance
- hold or be working towards an appropriate teaching/training/assessing qualification
- be familiar with the occupation and technical content covered within the qualification.

External quality assurance for the qualification will be provided by City & Guilds EQA process. EQAs are appointed by City & Guilds to approve centres, and to monitor the assessment and internal quality assurance carried out by centres. External quality assurance is carried out to ensure that assessment is valid and reliable, and that there is good assessment practice in centres.

The role of the EQA is to:

- provide advice and support to centre staff

- ensure the quality and consistency of assessments and marking/grading within and between centres by the use of systematic sampling
- provide feedback to centres and to City & Guilds.

Learner entry requirements

City & Guilds does not set entry requirements for these qualifications. However, centres must ensure that candidates have the potential and opportunity to gain the qualification successfully.

Age restrictions

This qualification is approved for learners aged 16 or above.

Access arrangements and reasonable adjustments

City & Guilds has considered the design of these qualifications and their assessments in order to best support accessibility and inclusion for all learners. We understand however that individuals have diverse learning needs and may require reasonable adjustments to fully participate. Reasonable adjustments, such as additional time or alternative formats, may be provided to accommodate learners with disabilities and support fair access to assessment.

Access arrangements are adjustments that allow candidates with disabilities, special educational needs, and temporary injuries to access the assessment and demonstrate their skills and knowledge without changing the demands of the assessment. These arrangements must be made before assessment takes place.

Equality legislation requires City & Guilds to make reasonable adjustments where a disabled person would be at a substantial disadvantage in undertaking an assessment.

It is the responsibility of the centre to ensure at the start of a programme of learning that candidates will be able to access the requirements of the qualification.

Please refer to the Joint Council for Qualifications (JCQ) access arrangements and reasonable adjustments and access arrangements - when and how applications need to be made to City & Guilds. For more information documents are available on the City & Guilds website.

Delivering the qualification

Initial assessment and induction

An initial assessment of each learner should be made before the start of their programme to identify:

- if the learner has any specific training needs
- support and guidance they may need when working towards their qualifications
- any units they have already completed or credit they have accumulated which is relevant to the qualification
- the appropriate type and level of qualification.

We recommend that centres provide an induction programme so the learner fully understands the requirements of the qualifications, their responsibilities as a learner and the responsibilities of the centre. This information can be recorded on a learning contract.

Inclusion and diversity

City & Guilds is committed to improving inclusion and diversity within the way we work and how we deliver our purpose which is to help people and organisations develop the skills they need for growth.

More information and guidance to support centres in supporting inclusion and diversity through the delivery of City & Guilds qualifications can be found here:

[Inclusion and diversity | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com)

Sustainability

City & Guilds are committed to net zero. Our ambition is to reduce our carbon emissions by at least 50% before 2030 and develop environmentally responsible operations to achieve net zero by 2040 or sooner if we can. City & Guilds is committed to supporting qualifications that support our customers to consider sustainability and their environmental footprint.

More information and guidance to support centres in developing sustainable practices through the delivery of City & Guilds qualifications can be found here:

[Our Pathway to Net Zero | City & Guilds \(cityandguilds.com\)](https://www.cityandguilds.com)

Centres should consider their own carbon footprint when delivering this qualification and consider reasonable and practical ways of delivering this qualification with sustainability in mind. This could include:

- reviewing purchasing and procurement processes (such as buying in bulk to reduce the amount of travel time and energy, considering and investing in the use of components that can be reused, instead of the use of disposable or single use consumables)
- reusing components wherever possible
- waste procedures (ensuring that waste is minimised, recycling of components is in place wherever possible)
- minimising water use and considering options for reuse/salvage as part of plumbing activities wherever possible.

Support materials

The following resources are available for these qualifications:

Description	How to access
Developing centre devised assessments	www.cityandguilds.com
Generic grading criteria	www.cityandguilds.com
Assessor guidance	www.cityandguilds.com

Assessment

Assessment of the qualification

Candidates must:

- successfully complete 1 online multiple choice test for unit 210
- successfully complete 1 short answer question paper (unit 305 or 319) as indicated by the rules of combination for each qualification
- have a completed a centre devised assignment for all units (other than 210, 305 and 319) required for each qualification.

The table below provides details on the assessment methods for each unit.

Assessment types

Unit	Title	Assessment method	Where to obtain assessment materials/guidance
203	Design schemes in furnishings	Assignment, centre devised	www.cityandguilds.com
205	Attaching doors, drawers and fittings in furniture making	Assignment, centre devised	www.cityandguilds.com
209	Hand finishing methods in furniture making	Assignment, centre devised	www.cityandguilds.com
210	Health and safety within furniture and furnishing making environments	Online multiple choice	www.cityandguilds.com
211	Manufacturing wood-based components using CNC machines	Assignment, centre devised	www.cityandguilds.com
214	Manufacturing wood-based components using powered tools	Assignment, centre devised	www.cityandguilds.com
216	Manufacturing wood-based components using sanding machines	Assignment, centre devised	www.cityandguilds.com
220	Timber technology in furniture making	Assignment, centre devised	www.cityandguilds.com
221	Mattress quilting operations	Assignment, centre devised	www.cityandguilds.com
222	Modern furniture upholstery	Assignment, centre devised	www.cityandguilds.com
223	Modern mattress making	Assignment, centre devised	www.cityandguilds.com
228	Spray finishing in furniture making	Assignment, centre devised	www.cityandguilds.com
229	Sustainability in the timber trade	Assignment, centre devised	www.cityandguilds.com

230	Technical drawings and workshop geometry	Assignment, centre devised	www.cityandguilds.com
231	Traditional furniture upholstery	Assignment, centre devised	www.cityandguilds.com
232	Veneering methods in furniture making	Assignment, centre devised	www.cityandguilds.com
301	Assemble furniture components	Assignment, centre devised	www.cityandguilds.com
302	Assessment of furniture restoration	Assignment, centre devised	www.cityandguilds.com
303	Decorative veneering in furniture making	Assignment, centre devised	www.cityandguilds.com
304	Design work for fitted furniture installation	Assignment, centre devised	www.cityandguilds.com
305	Environmental management and waste management in woodmachining	Short answer question paper	www.cityandguilds.com
306	Finishing methods in furniture restoration	Assignment, centre devised	www.cityandguilds.com
307	Furniture restoration	Assignment, centre devised	www.cityandguilds.com
308	Manage the production of wood-based components using machines	Assignment, centre devised	www.cityandguilds.com
309	Manufacturing wood-based components using CNC machines	Assignment, centre devised	www.cityandguilds.com
310	Manufacturing wood-based components using profiling machines	Assignment, centre devised	www.cityandguilds.com
311	Produce drawings using CAD	Assignment, centre devised	www.cityandguilds.com

312	Production planning in furniture and furnishing making	Assignment, centre devised	www.cityandguilds.com
313	Prototype design in furniture making	Assignment, centre devised	www.cityandguilds.com
314	Prototype design in modern upholstery	Assignment, centre devised	www.cityandguilds.com
315	Research and product design in furniture making	Assignment, centre devised	www.cityandguilds.com
316	Research and product development for modern furniture upholstery	Assignment, centre devised	www.cityandguilds.com
317	Restoration of traditional furniture upholstery	Assignment, centre devised	www.cityandguilds.com
318	Site survey for furniture installation	Assignment, centre devised	www.cityandguilds.com
319	Supervision in a furniture and furnishing making environment	Short answer question paper	www.cityandguilds.com
320	Supervision of fitted furniture installation	Assignment, centre devised	www.cityandguilds.com
321	Traditional mattress manufacture	Assignment, centre devised	www.cityandguilds.com
322	Workflow management in woodmachining	Assignment, centre devised	www.cityandguilds.com

Assessment strategy

City & Guilds has written the following assessments to use with these qualifications:

- evolve multiple choice test to be delivered on-screen (210).
- live short answer question papers that can be downloaded from the City & Guilds website (305, 319).

The evolve multiple choice test is an externally set, externally marked exam, scheduled and delivered by the centre under invigilated conditions.

Live assessments downloaded from the City & Guilds website, ie short answer question papers, are set by City & Guilds and administered by the centre when the candidate is ready. These assessments should be delivered by the centre under supervised conditions.

Assessments are marked by the centre using the marking guide provided in the relevant assessment materials which are available to download from www.cityandguilds.com. All assessment materials must be held securely by centres and not made available to candidates.

All other units (than 210, 305, 319) require centre-based assessment. City & Guilds has written guidance for centres to write their own assignments. See section [Centre set and marked assessments](#) below.

All internally marked assessments are subject to internal and external verification.

Centre set and marked assessments

City & Guilds has provided a separate 'Assessor guidance' document for writers of centre-based assessments which should be read in conjunction with the document, entitled, 'GM1 - Developing centre devised assessments – guidance for centre-based assessment writers' both available on the City & Guilds website.

A set of generic recording forms is also provided as follows:

- Assessment tasks (AD1)
- Assessment grading criteria (AD2)
- Assessment sign off form (AD3)
- Evidence recording form (GF1)
- Assessment unit front and mark sheet (GF2)
- Assessment task front sheet (GF3)
- Assessment unit mark sheet (GF4)
- Assessment feedback and action plan form (GF5)
- Qualification assessment tracking form (GF6)
- Group assessment tracking form (GF7)

A full explanation of the use of these forms can be found in the centre devised assessment writing guidance. All of this material is available to download from the City & Guilds website. at <http://www.cityandguilds.com/delivering-our-qualifications/centre-development/quality-assurance/quality-assurance-documents>

Time constraints

The following must be applied to the assessment of these qualifications:

Candidates must finish their assessment within 6 months.

And

Assignments should take no longer than 8 hours. If they do, centres should consider why this is and make sure that they are not trying to gather too much evidence.

Test specifications

The way the knowledge is covered by each test is laid out in the table below:

Test: 5780-210	Duration: 60 minutes		
Unit	Outcome	Number of questions	Percentage %
	1. Know health and safety requirements in the workplace	29	72.5
	2. Know how to identify hazards and risks in the workplace	11	27.5
	Total	40	100%

Units

Structure of the units

These units each have the following:

- City & Guilds reference number
- title
- level
- guided learning hours (GLH)
- credit value
- unit aim
- assessment type
- learning outcomes, which are comprised of a number of assessment criteria
- range statements
- supporting information
- relationship to National Occupational Standards (NOS)
- endorsement by a sector or regulatory body.

Guidance for delivery of the units

These qualifications comprise a number of **units**. A unit describes what is expected of a competent person in particular aspects of their job.

Each **unit** is divided into **learning outcomes** which describe in further detail the skills and knowledge that a candidate should possess.

Each **learning outcome** has a set of **assessment criteria** (performance and knowledge and understanding) which specify the desired criteria that must be satisfied before an individual can be said to have performed to the agreed standard.

Range statements define the breadth or scope of a learning outcome and its assessment criteria by setting out the various circumstances in which they are to be applied.

Supporting information provides guidance of the evidence requirement for the unit and specific guidance on delivery and range statements. Centres are advised to review this information carefully before delivering the unit.

Unit 203

Design schemes in furnishings

UAN:	F/503/2224
Level:	2
Credit value:	14
GLH:	90
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to research, develop, evaluate, produce and present design schemes in furnishings. The skills covered by this unit include: researching design styles, choice of materials and the influence colour, setting, backdrop has on design schemes. Also includes the evaluation of design schemes and creation of specifications to support media.

Learning outcome

The learner will:

LO1 know how to create design schemes in furnishings

Assessment criteria

The learner can:

AC1.1 describe the **aims** of design schemes

AC1.2 describe **information** required to create design schemes

AC1.3 describe different formats of **design schemes**

AC1.4 outline **processes** of developing design schemes

AC1.5 explain the importance of researching **products**

AC1.6 describe **techniques** to meet design scheme objectives

AC1.7 describe **factors** affecting material choice

AC1.8 outline how to record data to support **evaluation** decisions

AC1.9 explain the information that should be included in **specifications**.

Range

Aims

Purpose, durability, comfort, appearance, budgetary limits

Information

Size, colour, texture, style, setting, lighting, contrast

Design schemes

Mood boards, mock-ups, samples, test pieces, small scale realisation techniques

Processes

Discussion, create shape, colour combinations, material choice, recording, measuring, sketching, adjusting, evaluating, pinning, trimming

Products

Use of materials, current designs, product trends, shapes, styles

Techniques

Preparing, forming, joining, assembling, manipulating, editing, finishing

Factors

Colour, contrast, texture (softness, hardness), cost, availability, function, durability

Evaluation

Performance, function, ease of use, user/audience response

Specifications

Units of measurement, conventions, terms used, formats, material, colour

Learning outcome

The learner will:

LO2 be able to create design schemes

Assessment criteria

The learner can:

AC2.1 research products for **design schemes**

AC2.2 create design schemes

AC2.3 evaluate design scheme

AC2.4 produce specifications from design schemes.

Range

Design schemes

Mood board, samples, sketches

Unit 205

Attaching doors, drawers and fittings in furniture making

UAN:	Y/503/2214
Level:	2
Credit value:	3
GLH:	20
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	To be able to attach various types of fittings, drawers and doors used within the furniture industry and have an understanding of the faults that can occur during this part of the process. This unit will also deal with manufacturer's instructions and safe working practices when attaching fittings.

Learning outcome

The learner will:

LO1 know how to fit doors, drawers and attach fittings in furniture making

Assessment criteria

The learner can:

- 1.1 describe the purpose of technical specification
- 1.2 list **terms** used in technical specifications
- 1.3 describe functions and uses of **tools and equipment**
- 1.4 describe handling characteristics of **materials**
- 1.5 describe **faults** that may lead to rejection of doors or drawers
- 1.6 describe methods for attaching drawers and doors
- 1.7 describe functions of **fittings**
- 1.8 describe how to resolve **fitting faults**
- 1.9 describe **methods** for attaching fittings
- 1.10 explain how to quality check
- 1.11 describe consequences of not carrying out quality checks
- 1.12 describe **safe working practice**

Range

Terms

Jobs sheet, drawings, components list, tolerance of +/- 0.5mm

Tools and equipment

Sander, scraper, drills, staple gun, pin gun, screw gun, cramps, Marking gauge, tape measure

Materials

Natural timber and wood composites

Faults

Incorrect positioning of panels, alignment, appearance of wood, warping, quality

Fittings

Hinges, mouldings, handles, runners, stops, locks, castors, catches, brackets, action mechanisms, pre-cut glassware

Fitting faults

Re-alignment, return to originator

Methods

Doors and drawers: hinges, runners, handles

Fittings: screwing, pinning, bolting, cam and dowel

Safe working practice

Manufacturers' instructions, legal requirements (Control Of Substances Hazardous to Health COSHH, Provision and Use of Work Equipment Regulations PUWER, Health And Safety At Work Act HASAWA, Personal Protective Equipment PPE)

Learning outcome

The learner will:

LO2 be able to fit doors, drawers and attach fittings in furniture making

Assessment criteria

The learner can:

AC2.1 maintain a tidy work area

AC2.2 organise tools and equipment for effective working

AC2.3 demonstrate resolving faults

AC2.4 position **fittings**

AC2.5 attach fittings

AC2.6 fit doors and drawers

AC2.7 demonstrate quality checking methods.

Range

Fittings

Hinges, mouldings, handles, runners, stops

Unit 209

Hand finishing methods in furniture making

UAN:	T/503/2219
Level:	2
Credit value:	14
GLH:	120
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and practical skills to be able to prepare furniture and coating materials. This unit will cover preparing work pieces and materials, taking into account the faults that could arise and any application faults with materials. The unit give an awareness of health and safety legislation using data sheets for using and disposing of waste materials.

Learning outcome

The learner will:

LO1 understand the process of hand finishing furniture

Assessment criteria

The learner can:

AC1.1 explain the purpose of technical specification

AC1.2 list **terms** used in technical specifications

AC1.3 describe functions of **tools and equipment**

AC1.4 describe functions of **materials**

AC1.5 describe preparations for **surfaces**

AC1.6 describe types of **surface changes**

AC1.7 describe grades of abrasives

AC1.8 describe types of fillers and stoppers

AC1.9 describe how to deal with **application faults**

- AC1.10 describe quality checking measures
 - AC1.11 describe the **finishing process**
 - AC1.12 identify **drying times**
 - AC1.13 describe **safe working practice**
 - AC1.14 explain the importance of disposing of waste.
-

Range

Terms

Viscosity, colour, formulation, natural, forced, diagrams, colour cards

Tools and equipment

Cloths, brushes, rags, pads, sponges, tak rags, scrapers, sanding blocks, filler knives, steel wool, masking tape, abrasive pads, Sanding equipment, rubbers

Materials

Modern stains, Pre-formulated traditional stains, Sealers, two-pack sealers, primers, shellac sealers, French polishing lacquers, oil, water or mixed solvents, de-greasing agents, cleaning solvents, waxes, stoppers, burnishing creams, bleach, abrasive powders

Surfaces

Solid wood, veneered, flat panels, curved work, Sub assembly or assembly, wood composite

Surface changes

Holes, scratches, chips, dents, cracks, blisters, blemishes

Application faults

Uneven applications, poor wetting, blotching, marking of the surface, drips, runs, streaks, mismatched shading, poor surface finish

Finishing process

Preparation, staining, sealing, final coating

Drying times

Curing, working time, recoating time

Safe working practice

Manufacturers' instructions, legal requirements (Control Of Substances Hazardous to Health COSHH, Provision and Use of Work Equipment Regulations PUWER, Health And Safety At Work Act HASAWA, Personal Protective Equipment (PPE)

Learning outcome

The learner will:

LO2 be able to hand finish furniture

Assessment criteria

The learner can:

AC2.1 maintain a tidy work area

AC2.2 organise tools and equipment for effective working

AC2.3 demonstrate quality checking methods

AC2.4 prepare surfaces for finishing

AC2.5 carry out **hand finishing** process.

Range

Hand finishing

Stains, basecoats, primers, final coats

Unit 210

Health and safety within furniture and furnishing making environments

UAN:	T/503/2236
Level:	2
Credit value:	3
GLH:	18
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Multiple choice
Aim:	This unit introduces learners to best working practice and the legal responsibilities they have in the workplace. Learners will develop understanding of hazards and how to reduce risks in the workplace. They will understand how to evaluate the severity of risks.

Learning outcome

The learner will:

LO1 know health and safety requirements in the workplace

Assessment criteria

The learner can:

AC1.1 state health and safety responsibilities of the individual

AC1.2 identify relevant **workplace instructions**

AC1.3 identify **working practices** in a furniture/interiors related workplace with the potential to cause harm

AC1.4 identify the importance of reporting differences between suppliers, manufacturers or workplace instructions

AC1.5 describe **safe working practice** in a furniture/interiors related workplace.

Range

Workplace instructions

Manufacturers' instructions, legal requirements (Control Of Substances Hazardous to Health COSHH, Provision and Use of Work Equipment Regulations PUWER, Health And Safety At Work Act HASAWA)

Working practice

Use of: machinery, tools, equipment, substances

manual handling, storage, housekeeping

Safe working practice

Use of PPE, risk assessments, observe safe operating procedures, legal requirements

Learning outcome

The learner will:

LO2 know how to identify hazards and risks in the workplace

Assessment criteria

The learner can:

AC2.1 describe **hazards** which may be present in a furniture/interiors related workplace

AC2.2 explain the importance of remaining alert to the presence of hazards

AC2.3 explain the importance of dealing with hazards promptly

AC2.4 describe **risks** which may occur in a furniture/interiors related workplace

AC2.5 describe the employee's **responsibilities** for controlling risks

AC2.6 describe **risk assessments**

AC2.7 explain **individual involvement** of employees in risk assessments.

Range

Hazards

Activity, area

Risks

Activity, area

Responsibilities

Duty of care, correct personal conduct, observing working practices, legal requirements

Risk assessments

Formal record, document location

Individual involvement

Conduct risk inspection before each task (informal), respond to formal risk assessment

Unit 211

Manufacturing wood-based components using CNC machines

UAN:	T/503/2236
Level:	2
Credit value:	6
GLH:	57
Relationship to NOS:	This unit is affiliated to unit 254 Producing wood and wood-based products computer numerically controlled/numerically controlled (CNC/NC) machinery in the workplace of the Level 2 NVQ Diplomas in Furniture, Interiors and Wood Machining (5782-[10-26])
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to develop the knowledge, understanding and skills, required to set up and operate a range of computer numerical controlled machines to produce computer numerical controlled machine profiles on wood-based components within the relevant sector of industry.

Learning outcome

The learner will:

- LO1 understand the process of setting up and operating computer numerical controlled machines to produce a range of profiles on wood-based components

Assessment criteria

The learner can:

- AC1.1 describe **specifications** used to produce a range of profiles on wood-based components
- AC1.2 describe **characteristics** of **wood-based materials** that affect selection
- AC1.3 explain how to store wood-based materials
- AC1.4 describe the function of **computer numerical controlled machines**

- AC1.5 identify types of **tooling**
- AC1.6 describe the setting up **operations** of computer numerical controlled machines
- AC1.7 describe how wood-based materials are **secured** throughout the machining process
- AC1.8 list a range of **computer numerical controlled machine profiles** and identify the most suitable computer numerical controlled machine for each
- AC1.9 identify relevant **health and safety guidelines**
- AC1.10 identify **problems** in the computer numerical controlled process
- AC1.11 describe how waste material is cleared and disposed of
- AC1.12 outline **maintenance schedules**
- AC1.13 explain program storage methods
- AC1.14 describe modes and functions of keyboards
- AC1.15 describe how to maintain computer numerical controlled machines.

Range

Specifications

Drawings, specifications, schedules, cutting lists, risk assessments, manufacturers' information, tolerances

Characteristics

Shakes, knots, waney edge, sap, cupping, bowing, springing, twisting, splitting, fungal staining, fungal and insect attack, moisture content, kilning defects, case hardening, timber conversion, working properties

Wood-based materials

Hardwood, softwood, manufactured board

Computer numerical controlled machines

CNC router, CNC lathe, CNC saw

Tooling

Router cutters, drill bits, saw blades

Operations

Isolation, start up and shut down of machine, handling, fitting and adjustment of tooling, inputting programs, program proving, securing component, fitting and adjustment of tooling, LEV

Secured

Vacuum table, clamps, jigs

Computer numerical controlled machine profiles

Straight, contoured, bored holes, sawn profiles

Health and safety guidelines

Manufacturers' instructions, Health and Safety at Work Act (HASWA), Provision and Use of Work Equipment Regs (PUWER), Manual Handling Operations Regs, Control of Substances Hazardous to Health Regs (COSHH), Control of Noise at Work Regs, Electricity at Work Regs, Personal Protective Equipment Regs (PPE) and related Approved Codes of Practice (ACOP)

Problems

Machine malfunction, component moves off fixing during processing, wood-based component reveals or develops undesirable characteristic during processing
Maintenance schedules
Visual inspection, routine maintenance, lubrication schedule, servicing schedule timetable

Learning outcome

The learner will:

LO2 be able to operate the computer numerical controlled machine safely whilst producing profiles on wood-based components to specifications

Assessment criteria

The learner can:

AC2.1 extract data from specifications

AC2.2 select computer numerical controlled machine to meet specifications

AC2.3 carry out setting up operations to meet specifications

AC2.4 follow **safe practices** when feeding wood-based components through the computer numerical controlled machine

AC2.5 feed wood-based components through computer numerical controlled machines at correct speed to obtain the desired surface finish

AC2.6 produce CNC profiles on wood-based materials

AC2.7 load and unload components onto work table

AC2.8 rectify problems as and when they occur

AC2.9 maintain a tidy work area, organise tools and equipment for effective working

AC2.10 comply with the relevant health and safety guidelines.

Range

Safe practices

Stay outside computer numerical controlled machine enclosure, proximity of body to movable worktable

Unit 211

Manufacturing wood-based components using CNC machines

Supporting information

Unit range

Learner must use at least one CNC machine and produce a selection of CNC profiles listed in the range.

Guidance

Learners at this level are required to operate the machine but are not required to programme the machine.

AC 1.2: Tutors should be aware of timber technology with reference to the characteristics of wood based materials.

AC1.15: Maintenance here refers to cleaning, lubrication, storage not sharpening.

Unit 214

Manufacturing wood-based components using powered tools

UAN:	F/503/2238
Level:	2
Credit value:	6
GLH:	54
Relationship to NOS:	This unit is affiliated to unit 230 Maintain tools and equipment used in furniture making and installation & Unit 215 Make and assemble wooden components of hand-crafted furniture of the Level 2 NVQ Diplomas in Furniture, Interiors and Wood Machining (5782-[10-26]).
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to develop the knowledge, understanding and skills required to produce wood-based components using powered tools within the relevant sector of industry.

Learning outcome

The learner will:

- LO1 understand the process of setting up and operating computer numerical controlled machines to produce a range of profiles on wood-based components

Assessment criteria

The learner can:

- AC1.1 describe **specifications** used to produce a range of profiles on wood-based components
- AC1.2 describe **characteristics** of **wood-based materials** that affect selection
- AC1.3 describe storage of wood-based materials
- AC1.4 describe the function of **powered tools**
- AC1.5 identify types of powered tools
- AC1.6 describe **power sources**

- AC1.7 describe types of **consumables**
- AC1.8 describe the setting up **operations** of powered tools
- AC1.9 describe component **dimensional control devices**
- AC1.10 describe how wood-based materials are **supported** throughout the manufacturing process
- AC1.11 list a range of **profiles** and identify the most suitable powered tools for each
- AC1.12 identify relevant **health and safety guidelines**
- AC1.13 identify **problems** in the manufacturing process
- AC1.14 describe how waste material is cleared and disposed of
- AC1.15 outline **maintenance schedules**
- AC1.16 describe how to maintain powered tools.
-

Range

Specifications

Drawings, specifications, schedules, cutting lists, risk assessments, manufacturers' information, tolerances

Characteristics

Shakes, knots, waney edge, sap, cupping, bowing, springing, twisting, splitting, fungal staining, fungal and insect attack, moisture content, kilning defects, case hardening, timber conversion, working properties

Wood-based materials

Hardwood, softwood, manufactured board

Powered tools

Electrical, battery operated and air-powered: drill, screw driver, router, sander, jigsaw, portable circular saw, biscuit/loose tongue jointer, power planer, fretsaw, hot air gun, staple gun, angle grinder with wood cutting attachment. bench grinder, drill press, portable local exhaust ventilation (LEV)

Power sources

Mains electricity at 240V, mains electricity stepped down by using a transformer which reduces the voltage to 110V, electricity supplied at 110V (used on all sites and in workshops), electricity supplied by battery to cordless power tools (9–15V) which can be recharged, compressed air tools

Consumables

Drill bits, router cutters, abrasive belt/discs, jigsaw blades, circular saw blades, chop/pull over saw, biscuit/loose tongue jointer cutters and biscuit/loose tongues, power planer knives, fretsaw blades, LEV filter bags

Operations

Isolation, start up and shut down of powered tool, handling, fitting and fixing of consumables, adjustment of tooling and equipment, guards, LEV, use of dimensional control devices

Dimensional control devices

Fences, guides, jigs, auxiliary tables and bed piece, shop made devices

Supported

Bench vice/dogs, clamps & cramps, extension tables, support rollers, trestles, supporting personnel

Profiles

Holes, profiles, contours, sanded finishes, slots

Health and safety guidelines

Manufacturers' instructions, Health and Safety at Work Act (HASWA), Provision and Use of Work Equipment Regs (PUWER), Manual Handling Operations Regs, Control of Substances Hazardous to Health Regs (COSHH), Control of Noise at Work Regs, Electricity at Work Regs, Personal Protective Equipment Regs (PPE) and related Approved Codes of Practice (ACOP)

Problems

Powered tool malfunction, wood-based component reveals or develops undesirable characteristic during processing, component moves off fixing during processing

Maintenance schedules

Visual inspection, routine maintenance, lubrication schedule, servicing schedule timetable

Learning outcome

The learner will:

LO2 be able to operate powered tools safely whilst producing profiles on wood-based components to specifications

Assessment criteria

The learner can:

AC2.1 extract data from specifications

AC2.2 select powered tools to meet specifications

AC2.3 carry out setting up operations to meet specifications

AC2.4 demonstrate **safe practices** when using powered tools to modify wood-based components

AC2.5 feed powered tools through wood-based components at correct speed to obtain the desired surface finish

AC2.6 produce profiles on wood-based materials

AC2.7 rectify problems as and when they occur

AC2.8 maintain a tidy work area, organise tools and equipment for effective working

AC2.9 comply with the relevant health and safety guidelines.

Range

Safe practices

Use of feed and dimensional control devices, position of hands and body in respect of proximity to cutting agent

Unit 214

Manufacturing wood-based components using powered tools

Supporting information

Unit range

Learner must use at least six powered tools, one from each machine group to produce all of the profiles listed in the range.

Guidance

AC 1.2: Tutors should be aware of timber technology with reference to the characteristics of wood based materials.

AC 1.15: Maintenance here refers to cleaning, lubrication of moving parts and cutting agent.

Unit 216

Manufacturing wood-based components using sanding machines

UAN:	A/503/2237
Level:	2
Credit value:	6
GLH:	54
Relationship to NOS:	This unit is affiliated to unit 264 producing sanded wood and wood-based products in the workplace of the Level 2 NVQ Diplomas in Furniture, Interiors and Wood Machining (5782-[10-26]).
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to develop the knowledge, understanding and skills, required to set up and operate a range of sanding machines to produce sanded wood-based components within the relevant sector of industry.

Learning outcome

The learner will:

- LO1 understand the process of setting up and operating sanding machines to produce a range of sanded profiles on wood-based components

Assessment criteria

The learner can:

- AC1.1 describe **specifications** used to produce a range of sanded profiles on wood-based components
- AC1.2 describe **characteristics** of **wood-based materials** that affect selection
- AC1.3 explain how to store wood-based materials
- AC1.4 describe the function of **sanding machines**
- AC1.5 describe different types and grades of **abrasives**
- AC1.6 describe the setting up **operations** of sanding machines
- AC1.7 describe component **feed and dimensional control devices**
- AC1.8 describe how wood-based materials are **supported** throughout the machining process

AC1.9 list a range of **sanded profiles** and identify the most suitable sanding machines for each

AC1.10 identify relevant **health and safety guidelines**

AC1.11 identify **problems** in the sanding process

AC1.12 describe how waste material is cleared and disposed of

AC1.13 outline **maintenance schedules**

AC1.14 describe how to maintain abrasive mediums.

Range

Specifications

Drawings, specifications, schedules, cutting lists, risk assessments, manufacturers' information, tolerances

Characteristics

Shakes, knots, waney edge, sap, cupping, bowing, springing, twisting, splitting, fungal staining, fungal and insect attack, moisture content, kilning defects, case hardening, timber conversion, working properties

Wood-based materials

Hardwood, softwood, manufactured board

Sanding machines

Linisher/disc/bobbin machine, overhead narrow belt sander, wide belt sander, drum sander

Abrasives

Types: belt, disc

Operations

Isolation, start up and shut down of machine, fixing and adjustment of abrasive, tooling and equipment, guards, LEV, use of feed and dimensional control devices

Feed and dimensional control devices

Power feed, sliding table, jigs, auxiliary tables, bed piece, shop made devices

Supported

Extension tables, support rollers, supporting personnel

Sanded profiles

Flat panel, narrow edge, concave, convex

Health and safety guidelines

Manufacturers' instructions, Health and Safety at Work Act (HSWA), Provision and Use of Work Equipment Regs (PUWER), Manual Handling Operations Regs, Control of Substances Hazardous to Health Regs (COSHH), Control of Noise at Work Regs, Electricity at Work

Regs, Personal Protective Equipment Regs (PPE) and related Approved Codes of Practice (ACOP)

Problems

Machine malfunction, belt comes off, disc becomes detached, clogging, tearing and shredding of abrasive medium, burning, snaking, glazing, wood-based component reveals or develops undesirable characteristic during processing

Maintenance schedules

Visual inspection, routine maintenance, lubrication schedule, servicing schedule timetable

Learning outcome

The learner will:

LO2 be able to operate the sanding machine safely whilst producing sanded profiles on wood-based components to specifications

Assessment criteria

The learner can:

AC2.1 extract data from specifications

AC2.2 select sanding machines to meet specifications

AC2.3 carry out setting up operations to meet specifications

AC2.4 demonstrate **safe practices** when hand feeding wood-based components through the sanding machines

AC2.5 feed wood-based components through sanding machines at correct speed to obtain the desired surface finish

AC2.6 produce sanded profiles on wood-based materials

AC2.7 rectify problems as and when they occur

AC2.8 maintain a tidy work area, organise tools and equipment for effective working

AC2.9 comply with the relevant health and safety guidelines.

Range

Safe practices

Use of feed and dimensional control devices, position of hands and body in respect of proximity to sanding medium and in the event of component 'kick-back'

Unit 216

Manufacturing wood-based components using sanding machines

Supporting information

Unit range

Learner must use a disc sander, bobbin sander and belt sander and produce all of the sanded profiles listed in the range.

Guidance

AC 1.2: Tutors should be aware of timber technology with reference to the characteristics of wood-based materials.

AC 1.15: Maintenance here refers to cleaning of abrasive medium.

Unit 220

Timber technology in furniture making

UAN:	F/503/2174
Level:	2
Credit value:	6
GLH:	50
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	This unit requires learners to identify the characteristics and uses of solid wood and wood based products. The unit looks at the structure, working properties, appearance, stability, colour, grain patterns, drying method and storage of different wood types. Learners will identify sources of solid wood and investigate potential implications of selecting materials for different types of wood.

Learning outcome

The learner will:

LO1 understand the material technology of solid wood

Assessment criteria

The learner can:

- AC1.1 identify **characteristics** of **solid timber**
- AC1.2 describe types of solid timber used in the furniture industry
- AC1.3 describe **reasons** for using for different types of solid timber
- AC1.4 describe potential **defects** in solid timber
- AC1.5 describe **problems** that may occur when working with hardwood
- AC1.6 describe **storage requirements** for solid timber
- AC1.7 describe solid wood **sustainability**
- AC1.8 identify **commercial sizes** of solid timber
- AC1.9 describe **sources** of commercially sized solid timber
- AC1.10 explain how different **surface finishes** react with solid timber
- AC1.11 describe **safe working practice**.

Range

Characteristics

Structure, working properties, appearance, stability, colour, grain patterns, kiln dried, air dried, staining, , finishing, limitations

Solid timber

Softwood: douglas fur, pine, hemlock

Hardwood: beech, ash, oak, mahogany, birch, maple, sycamore, teak

Reasons

Exterior use, interior use, compression strength, tensile strength, durability, insect resistance

Defects

Cupping, twisting, bowing, shakes, dead knots, live knots, cracks, splits, grain defects, case hardening, insect infestation

Problems

Corrosion of fittings, staining to fittings, damage to tools, skin irritation, respiratory issues

Storage requirements

Clean, dry, well ventilated, kept flat, separated, covered

Sustainability

Source, ethical, recycling, waste disposal

Commercial sizes

Millimetres, metres, cubic metres

Sources

Specialist suppliers, abroad, home grown materials, sustainable

Surface finishes

Stains, lacquers, varnishes, oils, paints, exterior wood preservatives, natural, pressure impregnated

Safe working practice

Manufacturers' instructions, legal requirements (Control Of Substances Hazardous to Health COSHH, Provision and Use of Work Equipment Regulations PUWER, Health And Safety At Work Act HASAWA, Personal Protective Equipment PPE)

Learning outcome

The learner will:

LO2 understand the material technology of timber-based products

Assessment criteria

The learner can:

AC2.1 identify **characteristics** of **timber based products**

AC2.2 describe types of timber based products used in the furniture industry

AC2.3 describe **reasons** for using for different types of timber based products

AC2.4 describe potential **defects** in timber based products

AC2.5 describe **problems** that may occur when working with timber based products

AC2.6 describe **storage requirements** for timber based products

AC2.7 describe wood based product sustainability

AC2.8 identify **commercial sizes** of timber based products

AC2.9 explain how different **surface finishes** react with timber based products

AC2.10 describe manufacturing techniques of timber based products.

Range

Characteristics

Working properties, appearance, stability, colour, grain patterns, structure, finishing, limitations

Timber based products

Plywood, chipboard, MDF

Reasons

Interior use, durability, insect resistance, heat resistance, water resistance, stability, ease of application, cost, available

Defects

Pressing faults, veneering faults

Problems

Damage to tools, skin irritation, respiratory issues, carcinogenic, holding properties of fixings

Storage requirements

Clean, dry, well ventilation, kept flat, separated, indoors

Commercial sizes

Millimetres, metres, sheet sizes

Surface finishes

Stains, lacquers, varnishes, oils, paints, natural

Unit 221

Mattress quilting operations

UAN:	R/503/2230
Level:	2
Credit value:	8
GLH:	75
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to prepare and produce quilting for mattresses using machines. The skills covered by this unit include: preparing the work area and equipment, selecting materials and using machinery to carry out quilting operations.

Learning outcome

The learner will:

LO1 know how to prepare mattress quilting equipment

Assessment criteria

The learner can:

AC1.1 describe the purpose of technical specifications

AC1.2 list **terms** used in technical specifications

AC1.3 describe handling characteristics of materials

AC1.4 describe purposes of **materials**

AC1.5 explain how to protect mattresses from damage during quilting preparation

AC1.6 describe how to **prepare** for quilting

AC1.7 describe the **function** of equipment used in quilting process

AC1.8 describe **faults** that may occur during quilting preparation

AC1.9 identify **safe working practice** in mattress preparation

AC1.10 describe **safety functions** on quilting machines.

Range

Terms

Material, quilting dimensions, pattern, type, weight and size of filling, layer sequence, quality to be achieved, tolerance, visual appearance

Materials

Fabric, foam, tick, backing, backing thread, cotton, felt, wool, coir pad

Prepare

Machine start-up, quality check

Function

One and two headed

Faults

Tools and equipment faults, quality, application, positioning

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments

Safety functions

Interlocking guards, emergency stop, foot guard

Learning outcome

The learner will:

LO2 know how to quilt mattresses

Assessment criteria

The learner can:

AC2.1 describe the **quilting process**

AC2.2 state when to use different **methods** for quilting mattresses

AC2.3 explain how to **monitor** the quilting operation

AC2.4 describe the importance of minimising waste

AC2.5 describe **faults** that may be encountered during quilting

AC2.6 explain **processes** for dealing with faults

AC2.7 describe **quality checking** measures.

Range

Quilting process

Operation of equipment, machine shut-down, sequence of processing

Methods

Panels, borders, rolls, deep quilting

Monitor

Touch, feel, visual

Faults

Material defects, application, positioning, colour/pattern mismatching, non-functional equipment, tensioning, shape and size, stitching errors, re-threading, re-needling

Processes

Reject, replace, rectify, report, work around material defects

Quality checking

Visual, measurement

Learning outcome

The learner will:

LO3 be able to quilt mattresses

Assessment criteria

The learner can:

AC3.1 maintain a tidy work area

AC3.2 organise tools, equipment and materials

AC3.3 select appropriate protection for items while working

AC3.4 operate quilting machines

AC3.5 carry out quality checks.

Unit 222

Modern furniture upholstery

UAN:	K/503/2217
Level:	2
Credit value:	13
GLH:	130
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to prepare and produce items of modern upholstery. The skills covered by this unit include: preparing the frame, application of suspensions and filling materials, positioning and securing upholstery covers, positioning and securing trimmings and finishings, fastening bottom cloth firmly and accurately.

Learning outcome

The learner will:

LO1 understand how to prepare items of modern upholstery

Assessment criteria

The learner can:

AC1.1 describe the purpose of technical specifications

AC1.2 list **terms** used in technical specifications

AC1.3 describe functions of **tools and equipment** used in modern upholstery

AC1.4 state **indicators** that determine equipment fault

AC1.5 explain how to overcome equipment faults

AC1.6 describe **purposes** of **support materials**

AC1.7 outline handling characteristics of support materials

AC1.8 state indicators that determine **support material faults**

AC1.9 describe how to protect **items** from damage

AC1.10 identify **safe working practice** when using tools and equipment in modern upholstery.

Range

Terms

Material type, quality level, tolerance, visual appearance

Tools and equipment

Hammers, staple gun, frame gun, spring gun, staple remover, knives, shears, scalpels, stretching device

Indicators

Non-functional

Purposes

Structure, shape, comfort

Support materials

Suspensions , springs, elasticated webbing, support materials (webbing, foam, wadding, rubberised hair, insulation pad), edgings

Support material faults

Damage, incomplete

Items

Modern furniture, contract furniture, office furniture

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP)

Learning outcome

The learner will:

LO2 understand how to fit material and finish items of modern upholstery

Assessment criteria

The learner can:

AC2.1 describe handling characteristics of **upholstery covers**

AC2.2 describe different **methods** of securing upholstery covers

AC2.3 describe types of **problems** that may occur during fitting upholstery covers to items

AC2.4 describe the importance of minimising waste

AC2.5 explain the purpose of using a bottom cloth

AC2.6 list **fittings** used in modern upholstery

- AC2.7 describe handling characteristics of **trimmings and finishings**
AC2.8 explain methods of securing trimmings and finishings
AC2.9 describe problems that may occur during fitting of trimmings and finishings
AC2.10 describe **processes** for dealing with problems
AC2.11 describe **quality checks** for completed items.
-

Range

Upholstery covers

Patterned/striped, plain pile, vinyl, stretch fabrics, flat weave fabrics, natural hide, velvet

Methods

Stapling, temporary tacks, tacks, centring, 'v'-cut, 'Y'-cut, measuring, hand stitching, adhesives

Problems

Material defects, colour/pattern mismatching, non functional equipment, tensioning, shape and size, stitching errors

Fittings

Castors, bun feet, legs, glides, mechanical actions

Trimmings and finishings

Braide, piping, fringe, polished wood borders

Processes

Reject, replace, rectify, report, work around material defects

Quality checks

Visual, measurement

Learning outcome

The learner will:

LO3 be able to produce items of modern upholstery

Assessment criteria

The learner can:

AC3.1 maintain a tidy work area

AC3.2 organise tools, equipment and materials

AC3.3 check materials meet technical specification

- AC3.4 select appropriate protection for the item while working
- AC3.5 produce items of modern upholstery
- AC3.6 demonstrate quality checks.

Unit 223

Modern mattress making

UAN:	D/503/2229
Level:	2
Credit value:	6
GLH:	60
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to prepare and produce mattresses. The skills covered by this unit include: preparing the mattress assembly, application of suspensions and filling materials to form the shape, positioning and securing top covers, tufting/finishing, tape edging.

Learning outcome

The learner will:

LO1 know how to prepare mattresses for assembly

Assessment criteria

The learner can:

The learner can:

AC1.1 describe the purpose of technical specifications

AC1.2 list **terms** used in technical specifications

AC1.3 describe handling characteristics of **support materials**

AC1.4 describe purposes of different support materials

AC1.5 describe **methods** used in mattress preparation

AC1.6 describe **functions** of different tools used in mattress preparation

AC1.7 describe **faults** that may occur during mattress preparation

AC1.8 identify **safe working practice** during mattress preparation.

Range

Terms

Material to be used, quality, tolerance, dimensions, visual appearance, filling type, item type

Support materials

Foam, springs, foam encapsulated suspension units, fillings, panels, pads, single fillings, multi fillings/layered fillings

Methods

Stapling, hog-ringing, gluing, side blind, top stitching, roll stitching

Function

Hog ring gun, glue gun, staple gun

Faults

Tools and equipment, quality, application, positioning

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments

Learning outcome

The learner will:

LO2 know how to assemble mattresses

Assessment criteria

The learner can:

AC2.1 describe handling characteristics of **finishing materials**

AC2.2 describe **functions** of different tools used in finishing mattresses

AC2.3 describe **methods** for assembling mattresses

AC2.4 describe **faults** that may occur during assembly process

AC2.5 describe the importance of minimising waste

AC2.6 describe **processes** for dealing with problems

AC2.7 describe **quality checking measures**.

Range

Finishing materials

Top fabric, twine, pre-formed tufts, thread, tape edging, filler cord

Function

Tufting machine, tape edging

Methods

Mattress positioning, vertical application, alignment, tape edging, tufting

Faults

Material defects, colour/pattern mismatching, non functional equipment, tensioning, shape, size, stitching errors, broken thread, broken needle

Processes

Reject, replace, rectify, report, work around material defects

Quality checking measures

Visual, measurement

Learning outcome

The learner will:

LO3 be able to produce mattresses

Assessment criteria

The learner can:

AC3.1 maintain a tidy work area

AC3.2 organise tools, equipment and materials

AC3.3 check materials meet technical specification

AC3.4 select appropriate protection for the item while working

AC3.5 produce mattresses

AC3.6 demonstrate tape edging

AC3.7 demonstrate tufting

AC3.8 demonstrate quality checks.

Unit 228

Spray finishing in furniture making

UAN:	D/503/2215
Level:	2
Credit value:	20
GLH:	180
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and practical skills to spray finish furniture. This unit will cover preparing work pieces and materials, taking into account surface faults and any application faults with materials. The unit will also cover Health & Safety legislation using technical specifications and the disposing of waste materials.

Learning outcome

The learner will:

LO1 know the process of preparing to spray finish furniture

Assessment criteria

The learner can:

AC1.1 describe the purpose of technical specifications

AC1.2 list **terms** used in technical specification

AC1.3 describe functions of **tools and equipment** used in spray finishing

AC1.4 describe functions of **materials** used in spray finishing

AC1.5 describe different grades of **abrasives**

AC1.6 explain uses of fillers and stoppers

AC1.7 explain different preparations for **surfaces**

AC1.8 describe **surface faults** in timbers

AC1.9 describe **safe working practice**.

Range

Terms

Viscosity, colour, formulation, natural, forced, precat, AC, PU, curing, data sheets

Tools and equipment

Spray guns, spray booth, drying ovens, brushes, rags/cloths, pads, sponges, tak rags, scrapers, sanding blocks, filler knives, masking tape

Materials

Stains, sealers, primers, shellac, oil, water or mixed solvents, de-greasing agents, cleaning solvents, waxes, stoppers, burnishing creams, bleach

Abrasives

Sandpapers, steel wool, sanding blocks, pads

Surfaces

Solid wood, veneered, flat panels, curved work, sub-assembly or assembly, wood composite

Surface faults

Scratches, chips, dents, cracks, blisters, blemishes

Safe working practice

Manufacturers' instructions, legal requirements (Control Of Substances Hazardous to Health COSHH, Provision and Use of Work Equipment Regulations PUWER, Health And Safety At Work Act HASAWA, Personal Protective Equipment PPE)

Learning outcome

The learner will:

LO2 know the process of spray finishing furniture

Assessment criteria

The learner can:

- AC2.1 describe **application faults**
- AC2.2 describe how to deal with **faults** that occur
- AC2.3 describe quality checking measures
- AC2.4 describe the **finishing process** of furniture
- AC2.5 identify different drying times
- AC2.6 explain the importance of safely disposing waste.

Range

Application faults

Blooming, blotching, runs, streaks, orange peel, fish eye, poor wetting, uneven application, Nibs, holes

Faults

Surface, application

Finishing process

Preparation, staining, sealing, final coating

Learning outcome

The learner will:

LO3 be able to spray finish furniture

Assessment criteria

The learner can:

AC3.1 maintain a tidy work area

AC3.2 organise tools and equipment for effective working

AC3.3 carry out spray finishing to **components**

AC3.4 demonstrate quality checking methods.

Range

Components

Flat panels, curved work, sub-assembly or assembly

Unit 229

Sustainability in the timber trade

UAN:	T/503/2222
Level:	2
Credit value:	3
GLH:	12
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with an understanding of environmental impacts of the timber trade and endangered timbers. The unit required learners to understand waste management techniques and cost implications.

Learning outcome

The learner will:

LO1 understand how the timber trade impacts on the environment

Assessment criteria

The learner can:

AC1.1 explain the term sustainability

AC1.2 describe environmental **impacts** of the timber trade

AC1.3 describe man-made **causes** of deforestation

AC1.4 identify **endangered** timber species

AC1.5 describe roles of **organisations** promoting sustainable sourced timber

AC1.6 describe how to research **sources** of timber and timber based products

AC1.7 explain **reasons** to provide products made from sustainable sourced materials.

Range

Impacts

Environmental degradation, carbon release & capture, deforestation, carbon footprint

Causes

Food production, population pressure, high value timbers, illegal logging

Endangered

Convention on International Trade in Endangered Species

Organisation

Forestry Stewardship Council, Programme for the Endorsement Forest Certification Scheme, pressure groups

Sources

Plantation grown, naturally grown, exotic timbers, domestically grown

Reasons

Market demand, government legislation

Learning outcome

The learner will:

LO2 understand waste management within the timber trade

Assessment criteria

The learner can:

AC2.1 describe **waste** in processing trees to finished products

AC2.2 describe waste within workshops

AC2.3 explain ways of **minimising** waste within the manufacturing process

AC2.4 explain the term recycling

AC2.5 describe ways which **materials** can be recycled

AC2.6 identify cost implications of not recycling

AC2.7 explain how to **safely dispose** of waste.

Range

Waste

Wood chippings, saw dust, off cuts, timber based products, adhesives, finishes

Minimising

Timber sizes, nesting, production process, recycling

Materials

Timber, timber based products, finishes, adhesives

Safely dispose

Burning, pelleting, brickettes, COSHH

Unit 230

Technical drawings and workshop geometry

UAN:	K/503/2220
Level:	2
Credit value:	7
GLH:	40
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of the unit to provide the learner with knowledge and practical skills to both produce and read a range of protections used in technical drawings and to transfer these skills to the a workshop environment. Skills covered in this unit include developing drawing skills, drawing orthographic, oblique and isometric drawings using a range of drawing equipment. Learners will produce cutting lists from technical drawings. Learners will carry out workshop geometry. This unit will require learners to communicate ideas via drawings.

Learning outcome

The learner will:

LO1 know how to create technical drawings and practice workshop geometry

Assessment criteria

The learner can:

AC1.1 identify **equipment** used in technical drawings

AC1.2 identify **measurements** used in technical drawings

AC1.3 describe the use of **scales** in technical drawing

AC1.4 describe **projections** used in technical drawing

AC1.5 describe **lines** types for technical drawing

AC1.6 describe the purpose of rods

AC1.7 describe workshop geometry **techniques**

AC1.8 identify drawing **conventions** for abbreviations

AC1.9 explain how to prepare a **cutting list** using technical drawings.

Range

Equipment

Drawing boards, t squares, pens, pencils, compass, set squares, protractor, rubber, paper, computers, French curve, rulers, scale ruler

Measurements

Millimetres, metres

Scales

1:1, 1:2, 1:5

Projections

Orthographic, isometric, oblique, perspective

Lines

Construction, dimension, hidden detail, section lines, hatching, centre line

Techniques

Ellipse, drawing and bisecting shapes, enlarging, tangent, templates

Conventions

Current European guidelines

Cutting list

Length, width & thickness and for soft furnishings, foam size, top cover

Learning outcome

The learner will:

LO2 be able create technical drawings and practice workshop geometry

Assessment criteria

The learner can:

AC2.1 create technical drawings

AC2.2 use scales in technical drawings

AC2.3 use **projections** in technical drawings

AC2.4 use lines in technical drawings

AC2.5 set out rods

AC2.6 carry out workshop geometry **techniques**

AC2.7 use drawing **conventions** for abbreviations

AC2.8 prepare cutting lists from technical drawings.

Range

Projections

Orthographic, isometric, oblique, perspective

Techniques

Ellipse, drawing and bisecting shapes, enlarging, tangent, templates

Conventions

Current European guidelines

Unit 231

Traditional furniture upholstery

UAN:	L/503/2209
Level:	2
Credit value:	22
GLH:	200
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to prepare and produce items of traditional upholstery. The skills covered by this unit include: preparing the frame, application of suspensions and filling materials to form the shape, positioning and securing upholstery covers, hand cutting skills, positioning and securing trimmings and finishings, fastening bottom cloth firmly and accurately and expands skills in relation to deep buttoning and building foundations by hand.

Learning outcome

The learner will:

LO1 understand how to prepare upholstery foundations

Assessment criteria

The learner can:

AC1.1 describe the purpose of technical specifications

AC1.2 list **terms** used in technical specifications

AC1.3 describe what the furnishing regulations require for traditional **support materials**

AC1.4 explain the importance of checking the **condition** of the frame

AC1.5 explain purposes of different support materials

AC1.6 describe **processes** used to construct suspension systems

AC1.7 describe different **methods** of securing traditional support materials

AC1.8 outline handling characteristics of support material

AC1.9 describe the importance of constructing foundations for deep buttoning

AC1.10 identify **indicators** of faults when applying support materials

AC1.11 identify **safe working practice** when using support materials in traditional upholstery.

Range

Terms

Material, quality, tolerance, dimensions, visual appearance, filling type, item type (scroll arm, squab cushions – simple/complex shape)

Support materials

Suspensions (double and single cone springs, stretch and non stretch webbing, serpentine springs, spring units), fillings (hair, fibres, felts, wadding, feather/down, polyurethane foam, latex, polyester), under cover

Condition

Joint stability, infestation, wood irregularities

Processes

Spacing, alignment, lashing, lacing, tensioning, spring edge

Methods

Stitching, tacking, stapling, stretching

Indicators

Quality, application, positioning

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments

Learning outcome

The learner will:

LO2 understand how to fit material and finish items of traditional upholstery

Assessment criteria

The learner can:

AC2.1 describe handling characteristics of **upholstery covers**

AC2.2 describe **functions** of different tools used in traditional upholstery

AC2.3 describe different **methods** of securing upholstery covers

AC2.4 describe **problems** that may occur during fitting upholstery covers

AC2.5 describe the importance of minimising waste

AC2.6 explain the purpose of using a bottom cloth

AC2.7 describe handling characteristics of **trimmings and finishings**

AC2.8 explain different methods of securing trimmings and finishings

AC2.9 describe problems that may occur during fitting of trimmings and finishings

AC2.10 describe **processes** for dealing with problems

AC2.11 describe **quality checks** for completed items.

Range

Upholstery covers

Patterned/striped, plain pile, vinyl, stretch fabrics, flat weave fabrics, natural hide, velvet

Functions

Hammers, staple guns, staple remover, knives, shears, scalpels, stretching device, needles, skewers

Methods

Stapling, temporary tacks, tacks, centring, 'v'-cut, 'Y'-cut, measuring, hand stitching, deep buttoning

Problems

Material defects, colour/pattern mismatching, non functional equipment, tensioning, shape and size, stitching errors, button positioning

Trimmings and finishings

Braide, piping, fringe, polished wood borders, castors, bun feet, legs, studs

Processes

Reject, replace, rectify, report, work around material defects

Quality checks

Visual, measurement

Learning outcome

The learner will:

LO2 be able to produce items of traditional upholstery

Assessment criteria

The learner can:

AC3.1 maintain a tidy work area

AC3.2 organise tools, equipment and materials

AC3.3 check that materials meet specifications

AC3.4 select appropriate protection for items while working

AC3.5 tie in **springs** by hand

AC3.6 create sprung edges

AC3.7 build **foundations** of traditional upholstery support materials

AC3.8 produce **items** of traditional upholstery

AC3.9 carry out deep buttoning techniques

AC3.10 demonstrate quality checks.

Range

Springs

Double and single cone

Foundation

Hair, fibres, felt, wadding

Item

Armchair

Unit 232

Veneering methods in furniture making

UAN:	Y/503/2200
Level:	2
Credit value:	3
GLH:	22
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and practical skills to be able to veneer furniture using various methods. This unit will cover preparing, cutting and veneering methods and gives an awareness of health and safety legislation in particular when using adhesive.

Learning outcome

The learner will:

LO1 understand the process of preparing, tailoring and laying veneers

Assessment criteria

The learner can:

AC1.1 describe the purpose of technical specifications

AC1.2 list **terms** used in technical specifications

AC1.3 describe **conditions** for handling and storing veneers

AC1.4 describe **veneering methods**

AC1.5 describe functions of different **tools and equipment** used to veneer

AC1.6 describe the **process** for matching the quality of different veneers

AC1.7 describe the **characteristics** of different types of wood used to tailor veneers

AC1.8 describe the consequences of inaccurate measuring and cutting of joints

AC1.9 describe how to **prepare** surfaces for veneering

AC1.10 describe different uses of **adhesives**

AC1.11 identify **safe working practices** for adhesives

AC1.12 describe how to deal with **faults** that can occur during veneering

AC1.13 identify correct Personal Protective Equipment (PPE) for adhesives and equipment being used.

Range

Terms

Inlays, veneers, groundwork, straight, slip laid, leaf laid, book match, edge veneering, cross banding, sheet veneers, decorative veneers

Conditions

Flattening, damping, temperature, humidity and ventilation

Veneering methods

Hand laying, manually operated pressing, dry fitting, use of adhesives.

Tools and equipment

Veneering hammers, heated and unheated presses, heated cauls, adhesive rollers, edge clamps, veneer pins, heated adhesive pots, brushes and glue sticks, flat irons and sand bags. veneering saws and knives, planes, measuring devices, veneering tape, set squares, protractors, guillotine

Process

Grain fineness, orientation, colour, hue, decoration, light refraction characteristics

Characteristics

Hardwood, softwood

Prepare

Manmade board, solid wood, porous,

Adhesives

Polyvinyl acetate, urea or phenol formaldehyde, animal based glues, and resorcinol, contact

Safe working practice

Manufacturers' instructions and COSHH regulations, waste disposal, data sheets

Faults

Misalignment, mismatching, discolouration, marking or blistering, glue penetration, jointing, flaws

Learning outcome

The learner will:

LO2 be able to prepare and tailor veneers

Assessment criteria

The learner can:

- AC2.1 maintain a tidy work area
- AC2.2 organise tools, equipment and materials
- AC2.3 measure and mark veneers
- AC2.4 cut veneers
- AC2.5 tailor veneer **joints**.

Range

Joints

Taping, stitching

Learning outcome

The learner will:

- LO3 be able to lay veneers onto groundwork

Assessment criteria

The learner can:

- AC3.1 prepare groundwork for **veneering methods**
- AC3.2 carry out veneering methods
- AC3.3 demonstrate how to deal with veneer faults
- AC3.4 select Personal Protective Equipment.

Range

Veneering methods

Hand laying, manually operated pressing, dry fitting, use of adhesives

Unit 301

Assemble furniture components

UAN:	F/503/2188
Level:	3
Credit value:	9
GLH:	80
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to assemble complex handcrafted furniture. The skills covered by the unit include: leading others, preparation of tools, equipment and materials, assembly of complex hand crafted furniture with components that require matching up decoration and curved surfaces. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved of assemble that applies to professional practice within bespoke furniture making. It is envisaged that learners complete this unit are experienced in furniture making as this is a specialised unit that builds upon that knowledge.

Learning outcome

The learner will:

LO1 know how to assemble complex furniture components

Assessment criteria

The learner can:

AC1.1 describe **terms** used in technical specifications

AC1.2 explain **preparation methods** of furniture assembly

AC1.3 explain the furniture **assembly process**

AC1.4 describe **techniques** of assembling complex shaped furniture

AC1.5 describe types of **specialist clamps**

AC1.6 explain how to protect furniture components from damage during assembly

AC1.7 explain the process for selecting **adhesives**

AC1.8 describe **quality** checking measures

AC1.9 explain the **role** of others in furniture assembly
AC1.10 describe **leading** others during assembly
AC1.11 describe how to deal with **faults** that occur
AC1.12 describe **safe working practice**.

Range

Terms

True, square, pressures, alignment, shelf life, preparation, reconstitution, tack, creep, pot life, lamination, formers, curved work, vacuum forming

Preparation methods

Referencing, planning, quality checks, jig making, formers

Assembly process

Dry run, quality check, assemble

Techniques

Bow fronted, serpentine, coopering, compound angles, laminating

Specialist clamps

Band, mitre, frame, edge, vacuum pressing, workshop devices, radio frequency (RF) presses, windmill

Adhesives

Hot, cold, synthetic, natural

Role

Support, manual labour, supporting quality checks

Leading

Direction, supervision, instruction, clear communication

Faults

Misalignment, mismatching, discolouration, marking, jointing flaws

Safe Working practice

PPE, legal requirements, Health and Safety at work act (HASAWA), control of substances hazardous to health (COSHH), Risk assessments working practice

Learning outcome

The learner will:

LO2 be able to assemble complex furniture components

Assessment criteria

The learner can:

AC2.1 maintain a tidy work area

AC2.2 organise tools and equipment for effective working

AC2.3 design jigs for assembly

AC2.4 carry out preparation process for furniture assembly

AC2.5 carry out **techniques** to assemble complex shaped furniture

AC2.6 demonstrate use of specialist cramps

AC2.7 demonstrate quality checking

AC2.8 select personal protective equipment

AC2.9 demonstrate safe working practice.

Range

Techniques

Laminating, compound angles

Unit 302

Assessment of furniture restoration

UAN:	H/503/2152
Level:	3
Credit value:	13
GLH:	70
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to evaluate a restoration project and to specify the direction of restoration. The skills covered by the unit include: condition report writing, analysis of the historical context, restoration option sheets, action plans and client communication. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved of decision making that applies to professional practice within the assessment of furniture restoration. It is envisaged that learners that complete this unit are experienced in furniture making as this is a specialised unit that builds upon that knowledge.

Learning outcome

The learner will:

LO1 understand how to carry out furniture restoration assessments

Assessment criteria

The learner can:

AC1.1 describe **terms** used in furniture restoration

AC1.2 explain the importance of **record keeping**

AC1.3 describe the **principles** of furniture restoration

AC1.4 identify furniture restoration **bodies**

AC1.5 explain **measures** to avoid further damage

AC1.6 explain the importance of undertaking historical research

AC1.7 describe **sources** of information

AC1.8 describe **data** required from historical research

- AC1.9 define **processes** of restoration assessment
- AC1.10 explain **factors** of action planning
- AC1.11 justify courses of action
- AC1.12 describe **tools and equipment** used during furniture restoration assessment
- AC1.13 describe **safe working practice**
- AC1.14 describe **client characteristics**
- AC1.15 explain **professional approaches** to delivering restoration assessment results.

Range

Terms

Restore, conserve, repair, replicate

Record keeping

Before/after photo log, client communication, condition report, option sheets, action plan

Principles

Like for like, ethical, sympathetic, research

Bodies

BAFRA, ICON

Measures

Conservation, degeneration, after care

Sources

Primary: other people, professional trade organisations, museums

Secondary: historical records, internet, books

Data

Age, design, period, construction and finish details, material

Processes

Historical research, condition report, option sheets, action plan

Factors

Quality, costs, material, ethics, time estimates, strength, integrity, visual

Characteristics

Deliver on time, beyond expectations, listen to clients, respond to complaints, restoration ethics

Tools and equipment

Measuring tapes/rules/ metal detectors / dismantling tools – reverse clamps, syringe, hand tools, scratch stocks

Safe working practice

PPE, legal requirements, Health and Safety at work act (HASAWA), control of substances hazardous to health (COSHH), Risk assessments

Client characteristics

Private, trade

Professional approaches

Sympathetic, knowledgeable, offering options, solution driven

Learning outcome

The learner will:

LO2 be able to assess the condition of an item of furniture

Assessment criteria

The learner can:

AC2.1 carry out measures to avoid further deterioration in items of furniture

AC2.2 carry out historical research on items of furniture

AC2.3 carry out furniture restoration **assessments**

AC2.4 carry out **record keeping**

AC2.5 create action plans for furniture restoration

AC2.6 communicate options to clients.

Range

Assessment

Surface repair, structural repair, repair to finish

Record keeping

Before/after photo log, client communication, condition report, option sheets, action plan

Supporting information

Evidence requirements

Restoration commissions may be small scale (e.g. a small stool or chest) or large scale (e.g. because of the number of items to be restored, or because of the condition of the item, or because of the rarity/value of the item).

Information sources would include primary sources - other people, professional/trade organisations. Or secondary sources - documents (e.g. historical records, manufacturer's specifications), Information sources may be accessed directly or electronically. Information may have been collected and collated by another person as part of research into the restoration. In the context of this unit, the important dimension is that the information is used to support valid and effective decision-making.

Unit range

Learner must use at least 1 CNC machine and produce a selection of CNC profiles listed in the range.

Guidance

Client

Clients for a restoration may be private or corporate (e.g. via a gallery) or antique dealers.

Degradation

The level of deterioration in the structure and fabric of an item of furniture. Degradation can be mechanical (e.g. joint loosening), physical (e.g. fracture, ripping), biological (e.g. infestation) and/or chemical (e.g. pollutants).

Restoration

The return of an item of older, traditional or antique furniture to its original condition.

Unit 303

Decorative veneering in furniture making

UAN:	T/503/2155
Level:	3
Credit value:	11
GLH:	105
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to select, prepare and lay decorative and specialist veneer sheets. The skills covered by the unit include: the selection of decorative veneer cuts, producing marquetry and parquetry designs and laying onto groundwork. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved of decision making that applies to professional practice within the selecting, preparing and laying of decorative veneer for furniture making. It is envisaged that learners that complete this unit are experienced in veneering methods in furniture making as this is a specialised unit that builds upon that knowledge.

Learning outcome

The learner will:

LO1 know how to produce decorative veneers

Assessment criteria

The learner can:

AC1.1 describe **terms** used in technical specifications of decorative veneers

AC1.2 explain a history of marquetry

AC1.3 explain a history of parquetry

AC1.4 describe **characteristics** for selecting decorative veneers

AC1.5 explain **methods** of transferring decorative design to veneers

AC1.6 describe **tools and equipment** for decorative veneering

AC1.7 describe **types** of specialist decorative veneers

AC1.8 explain **processes** for decorative veneering
AC1.9 describe **adhesives** for laying decorative veneers
AC1.10 explain how to deal with decorative veneer **faults**
AC1.11 explain **safe working practices** that affect decorative veneering.

Range

Terms

Marquetry, parquetry, burr, curl, inlays, oyster, fiddleback, ripple, groundwork, buhl work, manufactured decorative veneers

Characteristics

Grain appearance, fineness, orientation, colour, hue, decoration, light refraction, matching, sand shading

Methods

Drawing design layouts, instruments, transfer of design, tracing, perforating machine, window, fretcutting techniques and laying

Tools and equipment

Pressure blocks, knives, scalpels, presses, fretsaw, veneer saw, donkey, treadle, paper, sand, guillotine, veneer tapes

Types

Timber based: curls, ripples, oysters, fiddle back, burr,

Non-timber based: metal, ivory, brass, silver, rare stones, tortoiseshell, shell, mother-of-pearl, plastic resin substitutes, fillets

Processes

Design, mark out, cut, tailor, lay

Adhesives

Hot, cold, synthetic, natural

Faults

Misalignment, mismatching, discolouration, marking or blistering, glue penetration, jointing, flaws

Safe Working practice

PPE, legal requirements, Health and Safety at work act (HASAWA), control of substances hazardous to health (COSHH), Risk assessments working practice

Learning outcome

The learner will:

LO2 be able to produce decorative veneers

Assessment criteria

The learner can:

AC2.1 design **decorative veneers**

AC2.2 carry out decorative veneer selection

AC2.3 transfer decorative veneer designs

AC2.4 cut decorative veneers

AC2.5 carry out decorative veneering

AC2.6 demonstrate fault finding

AC2.7 select personal protective equipment

AC2.8 demonstrate safe working practice.

Range

Decorative veneer

Marquetry, parquetry

Supporting information

Evidence requirements

The joints and methods used in making hand-crafted veneers would include the making of decorative panels, book matched, pictorial and geometric sheets and stringed sheets. These are influenced by the design required, which will be stated in the specifications. Joints must be accurately matched for grain orientation, colour and hue (sand shading), decoration and light refraction qualities.

Assignment – a marquetry and parquetry panel. Assignment of historical research.

Guidance

Veneers used in making hand-crafted furniture are made of natural timber. Typical timbers would include softwood and hardwoods, walnut, oak, ash, sycamore, mahogany, cherry and maple.

Other materials may also be used, such as mother-of-pearl, tortoiseshell, brass, silver nickel, parquetry, marquetry, rare stones, oyster veneer, plastic substitutes.

Unit 304

Design work for fitted furniture installation

UAN:	H/503/2197
Level:	3
Credit value:	11
GLH:	76
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The unit explores communication and customer service skills both to support learners to meet client requirements. The unit also covers key health and safety issues that may impact the design process. This unit puts into practice the design process for installation and give learners the opportunity to develop skills in design realisation, monitoring and evaluating the design process. The unit will support learners who specialise in fitting furniture and furnishings including window treatments.

Learning outcome

The learner will:

LO1 know how to communicate during the design process for fitted furniture installation

Assessment criteria

The learner can:

AC1.1 describe the importance of **good customer service**

AC1.2 describe methods of **communication**

AC1.3 identify **key personnel** required to communicate with during the **design process**

AC1.4 describe effective negotiation techniques

AC1.5 explain the importance of clarifying the design process to key personnel

AC1.6 explain how to present a design evaluation

AC1.7 describe **data** required from the design process.

Range

Good customer service

Deliver on promises, keeping the customer updated, exceeding expectations, listen to customers, respond to complaints, be helpful at all times, well trained staff, tailor services to the individual, knowing and understanding customer requirements, flexibility, leadership, task orientation, strong work ethic

Communication

Verbal, written pictorial and/or electronic, negotiation techniques, preparation, sensitivity, listening skills, compromise, commitment, principles, confirmation of agreement

Key personnel

Designer, client, suppliers, installers

Design process

Evaluation, collecting of data relevant for a furniture installation, Prototypes, 2D and 3D models, mock-ups, samples, test pieces, realisation, visualisation, electronic

Data

Client requirements, site requirements, measurements, style of design, location, access, timings

Learning outcome

The learner will:

LO2 understand the design process for fitted furniture installation

Assessment criteria

The learner can:

AC2.1 explain how to **respond** client brief for installation

AC2.2 describe **locations** where design process for installations may be required

AC2.3 describe **requirements** from installations

AC2.4 describe how to plan **resources** needed to meet design objectives

AC2.5 describe **formats** for recording data to support the design process

AC2.6 explain the importance of agreeing aims of the design process with **key personnel**

AC2.7 explain how to carry out **design evaluations**

AC2.8 describe **monitoring processes** during design evaluations

AC2.9 explain **realisation techniques** to meet design objectives

AC2.10 describe **tools and equipment** used in the design process

AC2.11 identify **safe working practice** during the design process

AC2.12 explain health and safety requirements that impact **design process decisions**.

Range

Respond

Budget, location, reality of requirements, advice, resources

Locations

Kitchens, shops, bathrooms, offices, bedrooms, domestic, commercial, public

Requirements

Fitted furniture, furnishings, window treatments

Resources

Off the shelf, bespoke, installer, service engineer

Formats

Measurement recording systems, drawings, specification, site plans, paperwork, client requirements, millimetres, metres, verbal, written, pictorial, electronic, plan-view, perspective, schedule

Key personnel

Designer, client, suppliers, installers

Design evaluations

Design objectives, specifications, client requirements, technical constraints of final design realisation, performance, function, ease of use, user/audience response media, materials, associated tools, equipment, techniques, processes used in producing furniture design, prototypes, materials, technology, designs, products

Monitoring processes

Check against brief: beginning, middle, end verbal checks with client, during installation

Realisation techniques

Small scale realisation techniques cover preparing, forming, joining, assembling, manipulating, editing and finishing the prototype ready for evaluation

Tools and equipment

Measuring tapes/rules/ sticks, electronic devices, stud/metal detectors, spirit level, laser level, plumb line, cameras

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments, Site requirements

Design process decisions

Site of appliances, service installations, waste disposal, substances used, location, hygiene, surfaces, ventilation

Learning outcome

The learner will:

LO3 be able to carry out the design process for fitted furniture installation

Assessment criteria

The learner can:

- AC3.1 select measuring tools and equipment
- AC3.2 carry out design processes for **locations**
- AC3.3 monitor design processes
- AC3.4 carry out evaluations of design processes
- AC3.5 communicate the results of evaluations
- AC3.6 demonstrate how data is recorded.

Range

Locations

Kitchen, office, bedroom

Unit 305

Environmental management and waste management in woodmachining

UAN:	A/503/2240
Level:	3
Credit value:	6
GLH:	35
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Short answer
Aim:	The aim of this unit is to develop the knowledge and understanding required to recognise how the manufacturing of wood-based components can impact negatively on the environment and how to provide solutions on reducing the impact through the efficient management of waste generated from the woodmachining process.

Learning outcome

The learner will:

- LO1 understand the risks to the environment that could arise during the production of wood-based components

Assessment criteria

The learner can:

- AC1.1 identify the **issues** relating to materials, products and equipment used in the production of wood-based components which could cause harm to the environment
- AC1.2 identify the **global and local environmental effects** which can occur as a result of production of wood-based components
- AC1.3 define **hazards** and **risks** in the production of wood-based components
- AC1.4 explain the importance of risk assessments in the identification of hazards to the environment.

Range

Issues

Consumption of raw materials: nature of the material, source, deforestation, use of exotic hard woods, packaging and associated wastage rate

Process efficiency: efficient utilisation of raw materials, energy and water

Air emissions: control of releases to air such as solvents, dust, noise and odour

Waste management: elimination, minimisation, reuse, recycling, recovery and disposal of solid wastes with associated controls

Wastewater: minimisation and control of liquid wastes ranging from vehicle wash down water to solvent waste

Ground and groundwater: protection of ground to avoid land contamination

End-of-life: consideration of the design and manufacture of an item to facilitate its reuse, recycling and recovery at the end of its useful life

Equipment: maintenance of vehicles, inefficient extraction equipment, using the correct machine for the job

Global and local environmental effects

Global warming, acid rain, ozone depletion, summer time smog, winter time smog, noise, smell, transport issues

Hazards

A hazard is something with the potential to cause harm (this can include articles, substances, plant or machines, methods of work, the working environment and other aspects of work management)

Risks

A risk is the likelihood of potential harm from a hazard being realised

Learning outcome

The learner will:

LO2 know how to minimise risks to the environment that could arise during the production of wood-based components

Assessment criteria

The learner can:

AC2.1 describe the **legislation** relating to environmental matters when producing wood-based components

AC2.2 identify manufacturers and workplace instructions for the safe use and storage of materials, products and equipment

AC2.3 identify **driving forces** which encourage good environmental practices

- AC2.4 explain the benefits to the environment of using wood-based products from sustainable sources
- AC2.5 explain the benefits of **sustainable development**.

Range

Legislation

Health and Safety at Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH) The Environment Protection Act, Pollution Prevention and Control Act, Clean Air Act, Water Resources Act, Climate Change Levy (Registration and Miscellaneous Provisions) Regulations and related Approved Codes of Practice (ACOP) noise regulations, risk assessments

Driving forces

Legal e.g. penalties for non compliance with legislation, financial e.g. disposal of waste products, market, social e.g. impact on local community, welfare of workforce

Sustainable development

Increase service efficiency, reduce material intensity, optimise material selection, increase the useful lifetime of embodied resources, increase energy efficiency, reduce release of toxic fumes during production

Learning outcome

The learner will:

- LO3 know how to manage the waste produced during the production of wood-based components

Assessment criteria

The learner can:

- AC3.1 describe **types of waste** that is generated by the woodworking sector
- AC3.2 outline the **key features of the legislation** relating to waste
- AC3.3 outline how 'trade effluent' should be managed under **specific key legislation**
- AC3.4 identify ways of managing **energy** consumed in operations such as machinery operation, compressed air generation, heating and lighting
- AC3.5 identify ways of **managing transport**
- AC3.6 explain the key features of the **waste management hierarchy**
- AC3.7 outline the **benefits** to the organisation of controlling waste.

Range

Types of waste

Raw materials e.g. dust, chips, off cuts

Energy e.g. removing unnecessary processes, effective use of transport

Key features of legislation

Environmental Protection Act 1990 Part II: Duty of Care:-

The chain of individuals involved in the life-cycle of waste, on-site considerations as to how waste is to be stored, labelled, security

Transfer considerations as to the transfer of responsibility of waste once it have been passed on

Hazardous Waste (England & Wales) Regulations:- waste thinners, empty and obsolete solvent based tins, waste oil and oil/water interceptor residues, fluorescent tubes from lighting and cathode ray tube computer screens

Producer Responsibility Obligations Regulations:- cardboard, bubble wrap and tape on goods out, transit packaging on imported goods in, e.g. plastic sheets, metal banding and disposable wooden crates

Packaging (Essential Requirement) Regulations:- packaging volume and weight limited, packaging must be designed and produced so as to permit its reuse or recovery, packaging must be manufactured so that noxious and other hazardous substances are minimised with heavy metal concentrations within specified limits.

Waste Electrical and Electronic Equipment (Producer Responsibility)

Fitted electrical appliances along with their wood-based products e.g. kitchen companies selling fitted electrical appliances, furniture with lights in such as cabinets or electric re-liner mechanisms

Specific key legislation

Water Resources Act Regulations, Landfill Tax Regulations, Water Industry Act, Water Industry Act, Contaminated Land Regulations, Control of Pollution (Oil Storage) (England) Regulations

Energy

Electricity, gas, heating oil and wood fuel

Managing transport

Route planning: as many customers as possible are served by a single vehicle

Return loads: raw materials be collected on the way back or could transport be undertaken for another company

Fuel efficiency training: monitor fuel consumption against driver performance

Maintain vehicles: run efficiently

Waste management hierarchy

Eliminate, minimise, recycle, reuse, treat / incinerate, disposal

Benefits

Cost efficient, legal: avoidance of penalties for non-compliance with legislation, protection of company image

Unit 305

Environmental management and waste management in woodmachining

Supporting information

Unit range

Learner must use at least one CNC machine and produce a selection of CNC profiles listed in the range.

Guidance

It is expected that the learner will have completed unit Y29 Manufacturing wood-based components using profiling machines which focuses predominately on producing profiles on 'straight work'. This unit builds on unit Y29 and introduces curved work which is carried out on a vertical spindle moulder using a 'ring fence'. This is regarded as a hazardous process due to the change of grain direction on the curved wood based component which can cause 'kickback'.

AC 1.2: Tutors should be aware of timber technology with reference to the characteristics of wood based materials.

AC 1.14: Maintenance here refers to cleaning, lubrication, storage not sharpening.

Unit 306

Finishing methods in furniture restoration

UAN:	F/503/2157
Level:	3
Credit value:	18
GLH:	160
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	<p>The aim of this unit is to provide the learner with the knowledge and skills to apply finishes to items which have under gone restoration, following a finishing plan. Learners will understand the irregular nature of restoration and demonstrate how to respond to differing requirements both from the client and the piece. The skills covered by the unit include: cleaning, stripping, finishes, stains, bleaches, colour matching, painting out, photo logbook. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved of decision making that applies to professional practice within furniture restoration of wooden and specialist components. It is envisaged that learners that complete this unit are experienced in wood finishing & furniture restoration as this is a specialised unit that builds upon that knowledge. The unit is recommended to be taken in conjunction with unit Assessment of Furniture Restoration & Furniture Restoration.</p>

Learning outcome

The learner will:

LO1 understand how to carry out finishing methods in furniture restoration

Assessment criteria

The learner can:

AC1.1 describe **terms** used in finishing when restoring furniture

AC1.2 describe uses of **finishes** in restoration

- AC1.3 describe uses of **stains** in restoration
- AC1.4 describe uses of pigments
- AC1.5 describe effects of **bleaches** on application
- AC1.6 describe potential consequences of cleaning **methods**
- AC1.7 describe **factors** for selecting finishes in restoration
- AC1.8 explain measures to avoid damage to colour
- AC1.9 explain problems when painting patches on reflective timber
- AC1.10 describe techniques to restore **specialist finishes** in furniture restoration
- AC1.11 explain colour matching
- AC1.12 explain distressing **techniques**
- AC1.13 describe techniques for finishing metal components
- AC1.14 describe the content of finishing plans
- AC1.15 describe finishing **tools and equipment** used during furniture restoration
- AC1.16 describe information to **record** during furniture restoration
- AC1.17 describe **safe working practices**.

Range

Terms

Colour, patina, reflectivity, stain, pigments, solvents, finishes, bleaching, cleaning, stripping, reversible, matt, gloss, distressing

Finishes

Shellac, waxes, oils, varnish, lacquers

Stains

Natural, water, spirit, oil, aniline, chemical

Bleaches

Oxalic acid, sodium hydroxide & hydroxide peroxide, Chlorine, nitric acid

Methods

Water, soap, turpentine, metholated sprits, strippers, cloth, wire wool, burnishing creams

Factors

Reversible, patina, historical use, durability, colour, reflectivity

Specialist finishes

Painted surfaces, Lacquer, Japanned, gold leaf

Techniques

Buffing, aging, lacquering

Tools and equipment

Cloths, Mops, brushes, steel wool, rubbers, wax fillers, mutton cloth, burnishers

Record

Stains, finishes used, action plan, photo log

Safe working practice

PPE, legal requirements, Health and Safety at work act (HASAWA) control of substances hazardous to health (COSHH), risk assessment

Learning outcome

The learner will:

LO2 be able to carry out finishing methods in furniture restoration

Assessment criteria

The learner can:

AC2.1 maintain a tidy work area

AC2.2 organise tools, equipment, stains and finishes

AC2.3 carry out **preparation** for finishing furniture restoration

AC2.4 carry out **finishing methods** in furniture restoration

AC2.5 carry out distressing of finishes

AC2.6 evaluate finishing

AC2.7 carry out cleaning finishing on metal components

AC2.8 demonstrate **record keeping**

AC2.9 demonstrate safe working practices.

Range

Preparation

Surfaces, finishes

Finishing methods

Bleaching, chemical staining, staining, French polishing, wax, oil, colour matching, painting out

Record keeping

Stains, finishes used, action plan, photo log

Unit 306

Finishing methods in furniture restoration

Supporting information

Evidence requirements

Restoration commissions may be small scale (e.g. a small stool or chest) or large scale (e.g. because of the number of items to be restored, or because of the condition of the item, or because of the rarity/value of the item).

Unit 307

Furniture restoration

UAN:	M/503/2154
Level:	3
Credit value:	19
GLH:	165
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to complete restoration following an action plan. Learners will understand the irregular nature of restoration and demonstrate how to respond to differing requirements both from the client and the piece. The skills covered by the unit include: dismantling, restoration, conservation, replica making, reassembly, photo logbook and client communication. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved of decision making that applies to professional practice within furniture restoration of wooden and specialist components. It is envisaged that learners that complete this unit are experienced in furniture making as this is a specialised unit that builds upon that knowledge. The unit is recommended to be taken in conjunction with unit Assessment of furniture restoration, Finishing methods in furniture restoration.

Learning outcome

The learner will:

LO1 understand how to carry out furniture restoration

Assessment criteria

The learner can:

AC1.1 describe **terms** used in furniture restoration

AC1.2 explain the importance of referring to agreed option sheets

AC1.3 describe **record keeping** for dismantling furniture

- AC1.4 explain how to **dismantle** furniture during furniture restoration
- AC1.5 explain the diverse nature of **materials** in furniture making
- AC1.6 describe techniques to restore **specialist components** in furniture restoration
- AC1.7 describe **measures** to avoid further damage
- AC1.8 describe restoration workshop **layout**
- AC1.9 explain the importance of following **restoration principles**
- AC1.10 describe **restoration options**
- AC1.11 describe **repairs** during furniture restoration
- AC1.12 describe **reassembly methods**
- AC1.13 explain uses of **tools and equipment** during furniture restoration
- AC1.14 explain **professional approaches** to delivering restoration results
- AC1.15 describe **client characteristics**
- AC1.16 describe **safe working practice**.

Range

Terms

Restore, conserve, repair, replicate

Record keeping

Referencing , photo log, timesheet, cost analysis against estimate, action plan

Dismantle

Screws, nails, joints, mouldings, referencing

Materials

Timber based, metals, plastics, rush, cane work, upholstery, gold leaf, ivory, mother of pearl, bone, leather, ormolu, papier mache

Specialist components

Locks, leather, glass, gilt

Measures

Conservation, woodworm treatment, after care advice, damp treatments

Layout

Breakers, benches, platform, finishing area, special process area, storage, resources store

Restoration principles

Like for like, ethical, sympathetic, historical research

Restoration options

Dismantle, replace, conserve, restore, reassembly

Repairs

Surface, structural, door, drawer, moving parts, mouldings, veneers

Reassembly methods

Clamps, jigs, workshop aids

Tools and equipment

Measuring equipment, metal detectors, reverse clamps, syringe, hand tools, scratchstocks, screw borer removers, blow torch, soldering iron, bespoke tools

Professional approaches

Sympathetic, knowledgeable, offering options, solution driven, keeping client updated

Client characteristics

Private, trade, collections

Safe working practice

PPE, legal requirements, Health and Safety at work act (HASAWA), control of substances hazardous to health (COSHH), Risk assessments

Learning outcome

The learner will:

LO2 be able to carry out furniture restoration

Assessment criteria

The learner can:

AC2.1 maintain a tidy work area

AC2.2 organise tools and equipment for effective working

AC2.3 carry out measures to avoid further deterioration to furniture

AC2.4 carry out dismantling of furniture

AC2.5 carry out **repairs** to furniture during restoration

AC2.6 carry out repairs to specialist components

AC2.7 carry out reassembly of furniture

AC2.8 demonstrate **record keeping**

AC2.9 communicate options to clients.

Range

Repairs

Surface, structural, door, drawer, mouldings, veneers

Record keeping

Referencing, photo log, timesheet, cost analysis against estimate, action plan

Supporting information

Evidence requirements

Restoration commissions may be small scale (e.g. a small stool or chest) or large scale (e.g. because of the number of items to be restored, or because of the condition of the item, or because of the rarity/value of the item).

Unit range

Learner must use at least one CNC machine and produce a selection of CNC profiles listed in the range.

Guidance**Client**

Clients for a restoration may be private or corporate (e.g. via a gallery) or antique dealers.

Degradation

The level of deterioration in the structure and fabric of an item of furniture. Degradation can be mechanical (e.g. joint loosening), physical (e.g. fracture, ripping), biological (e.g. infestation) and/or chemical (e.g. pollutants).

Restoration

The return of an item of older, traditional or antique furniture to its original condition.

Unit 308

Manage the production of wood-based components using machines

UAN:	J/503/2211
Level:	3
Credit value:	15
GLH:	130
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to develop the knowledge, understanding and skills, required to organise the set up and operation of a range of wood processing machines to produce wood-based components within the relevant sector of industry. Also to introduce learners to the organisational skills which will support them in overseeing the set up and operation of a range of wood processing machines in the production of wood-based components.

Learning outcome

The learner will:

- LO1 understand the process of organising the setup and operation of machines to produce wood-based components

Assessment criteria

The learner can:

- AC1.1 describe **specifications** used to produce **profiles** on wood- based components
AC1.2 describe **characteristics** of **wood-based materials** that affect selection
AC1.3 explain how to store wood-based materials
AC1.4 describe the function of **machines**
AC1.5 identify types of tooling used on the machines and describe their application
AC1.6 describe the setting up **operations** of machines
AC1.7 describe how wood-based materials are **supported** throughout the machining process
AC1.8 list a range of profiles and identify the most suitable tooling machine for each
AC1.9 identify relevant **health and safety guidelines**
AC1.10 describe the purpose of a risk assessment

AC1.11 describe how to resolve **problems** that can occur during the organisation, setup and operation of machines to produce wood- based components

AC1.12 describe how waste material is cleared and disposed of

AC1.13 explain the importance of **maintenance schedules**

AC1.14 describe how to **maintain machines** and tooling.

Range

Specifications

Drawings, specifications, schedules, cutting lists, risk assessments, manufacturers' information, tolerances

Profiles

Sawn, planed, profiled, jointed, bored, sanded

Characteristics

Shakes, knots, waney edge, sap, cupping, bowing, springing, twisting, splitting, fungal staining, fungal and insect attack, moisture content, kilning defects, case hardening, timber conversion, working properties

Wood-based materials

Hardwood, softwood, manufactured board

Machines

Sawing, planing, profiling, jointing, sanding, CNC machines

Operations

Isolation, start up and shut down of machine, handling, fitting and adjustment of tooling and equipment, guards, LEV, use and manufacture of feed and dimensional control devices

Supported

Trestles, conveyors, extension tables, support rollers, supporting personnel

Health and safety guidelines

Manufacturers' instructions, Health and Safety at Work Act (HASWA), Provision and Use of Work Equipment Regs (PUWER), Manual Handling Operations Regs, Control of Substances Hazardous to Health Regs (COSHH), Control of Noise at Work Regs, Electricity at Work Regs, Personal Protective Equipment Regs (PPE) and related Approved Codes of Practice (ACOP)

Problems

Set up and operation: machine malfunction, wood-based component reveals or develops undesirable characteristic during processing,

Component feed organisation: staffing issues, delivery issues, machine down time

Maintenance schedules

Visual inspection, routine maintenance, lubrication schedule, servicing schedule timetable

Maintain machines

Cleaning, lubrication, oiling, clearing resin build up, planned preventative measures

Learning outcome

The learner will:

LO2 be able to organise the setup and operation of machines in the production of wood based components to meet specifications

Assessment criteria

The learner can:

AC2.1 organise the setup and operation of machines in the production of wood based components

AC2.2 produce and extract data from specifications

AC2.3 select machines to meet specifications and optimise performance

AC2.4 carry out a risk assessment

AC2.5 carry out setting up operations to meet specifications

AC2.6 demonstrate **safe practices** when hand feeding wood-based components through machines

AC2.7 feed wood-based components through machines at controlled pace to obtain the desired surface finish

AC2.8 produce profiles on wood-based materials

AC2.9 resolve problems as and when they occur

AC2.10 maintain a tidy work area, organise tools and equipment for effective working

AC2.11 comply with the relevant health and safety guidelines.

Range

Safe practices

Use of feed and dimensional control devices, position of hands and body in respect of proximity to moving tooling and components in the event of component 'kick-back'

Learning outcome

The learner will:

LO3 understand how to manage teams and individuals in production of wood based components

Assessment criteria

The learner can:

- AC3.1 describe how to produce **work plans** in conjunction with team members
- AC3.2 describe the importance of effective communication when explaining work plans
- AC3.3 outline the importance of reviewing work plans regularly
- AC3.4 explain the importance of providing **team members** with the **opportunity** to contribute to the planning and organisation of their work
- AC3.5 identify the types of **organisational constraints** which influence production planning
- AC3.6 describe how to develop realistic and achievable work plans for team members
- AC3.7 identify methods of producing a productive working environment
- AC3.8 describe how to give **feedback** to team members to meet **situations**
- AC3.9 describe job roles and responsibilities in **organisations** within the woodworking sector.

Range

Work plans

Short term, medium term, to meet team objectives, to meet individual objectives

Team members

Colleagues for whom you have line responsibility, management

Opportunity

One-to-one, team meetings, tool box talks

Organisational constraints

Resource availability, time allocations, team members abilities, organisational policies, organisational objective, health and safety legalisation

Feedback

Spoken, written, positive, negative

Situations

During normal day to day activities, when required to maintain motivation, morale and effectiveness, during formal appraisals, disciplining, team meetings and briefings, during confidential discussions at work

Organisations

Small, medium, large

Unit 308

Manage the production of wood-based components using machines

Supporting information

Guidance

It is expected that the learner will have completed the mandatory and optional units from Level 2 NVQ Diploma in Wood Machining - Furniture 5782-26, 500/8481/1 as this unit builds on level 2 and introduces the learner to organisational skills which will support them in overseeing the set up and operation of a range of wood processing machines to produce wood-based components.

AC 1.2: Tutors should be aware of timber technology with reference to the characteristics of wood based materials.

AC 1.14: Maintenance here refers to cleaning, lubrication, storage not sharpening.

Unit 309

Manufacturing wood-based components using CNC machines

UAN:	L/503/2212
Level:	3
Credit value:	17
GLH:	130
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to develop the knowledge, understanding and skills, required to set up and operate a range of computer numerical controlled machines to produce computer numerical controlled machine profiles on wood-based components within the relevant sector of industry.

Learning outcome

The learner will:

- LO1 understand the process of programming, setting up, and operating computer numerical controlled machines to produce a range of profiles on wood-based components

Assessment criteria

The learner can:

- AC1.1 describe **specifications** used to produce a range of profiles on wood-based components
- AC1.2 describe **characteristics** of **wood-based materials** that affect selection
- AC1.3 explain how to store wood-based materials
- AC1.4 describe the function of **computer numerical controlled machines**
- AC1.5 describe **methods** of scripting a part programme
- AC1.6 explain how to input data into computer numerical controlled machines
- AC1.7 explain how to programme prove
- AC1.8 identify types of **tooling** and their application
- AC1.9 describe the setting up **operations** of computer numerical controlled machines
- AC1.10 describe how wood-based materials are **secured** throughout the machining process

- AC1.11 list a range of **computer numerical controlled machine profiles** and identify the most suitable CNC for each
- AC1.12 identify relevant **health and safety guidelines**
- AC1.13 describe the purpose of a risk assessment
- AC1.14 describe how to resolve **problems** in the computer numerical controlled process
- AC1.15 describe how waste material is cleared and disposed of
- AC1.16 explain program storage and retrieval methods for electronic data
- AC1.17 describe methods of inputting data into the machine control
- AC1.18 explain the importance of **maintenance schedules**
- AC1.19 describe how to **maintain computer numerical controlled machines**.

Range

Specifications

Drawings, specifications, schedules, cutting lists, risk assessments, manufacturers' information, tolerances

Characteristics

Shakes, knots, waney edge, sap, cupping, bowing, springing, twisting, splitting, fungal staining, fungal and insect attack, moisture content, kilning defects, case hardening, timber conversion, working properties

Wood-based materials

Hardwood, softwood, manufactured board

Computer numerical controlled machines

CNC router, CNC lathe, CNC saw

Methods

Manually writing part programs using standard coding system ('G' and 'M' codes), use of dedicated software CAD/CAM (Computer Aided Design/Computer Aided Manufacturer)

Tooling

Router cutters, drill bits, saw blades

Operations

Isolation, start up and shut down of machine, handling, fitting and adjustment of tooling, writing part programs, inputting programs, program proving, securing component, fitting and adjustment of tooling, guarding, LEV

Secured

Vacuum table, clamps, jigs

Computer numerical controlled machine profiles

Straight, contoured, bored holes, sawn profiles

Health and safety guidelines

Manufacturers' instructions, Health and Safety at Work Act (HASWA), Provision and Use of Work Equipment Regs (PUWER), Manual Handling Operations Regs, Control of Substances Hazardous to Health Regs (COSHH), Control of Noise at Work Regs, Electricity at Work Regs, Personal Protective Equipment Regs (PPE) and related Approved Codes of Practice (ACOP)

Problems

Machine malfunction, program proving error report, component moves off fixing during processing, wood-based component reveals or develops undesirable characteristic during processing

Maintenance schedules

Visual inspection, routine maintenance, lubrication schedule, servicing schedule timetable

Maintain CNC machines and tooling

Cleaning, lubrication, oiling, clearing resin build up, planned preventative measures

Learning outcome

The learner will:

LO2 be able to organise the setup and operation of machines in the production of wood based components to meet specifications

Assessment criteria

The learner can:

AC2.1 extract data from specifications

AC2.2 select computer numerical controlled machines to meet specifications

AC2.3 write a part programme from specifications

AC2.4 carry out a risk assessment

AC2.5 carry out setting up operations to meet specifications

AC2.6 demonstrate **safe practices** when feeding wood-based components through the computer numerical controlled machines

AC2.7 feed wood-based components through computer numerical controlled machines at correct speed to obtain the desired surface finish

AC2.8 produce CNC profiles on wood-based materials

AC2.9 load and unload components onto worktable

AC2.10 resolve problems as and when they occur

AC2.11 maintain a tidy work area, organise tools and equipment for effective working

AC2.12 comply with the relevant health and safety guidelines.

Range

Safe practices

Stay outside computer numerical controlled machine enclosure, proximity of body to movable worktable

Unit 309

Manufacturing wood-based components using CNC machines

Supporting information

Unit range

Learner must use at least one CNC machine and produce a selection of CNC profiles listed in the range.

Guidance

It is expected that the learner will have completed unit Y31 Manufacturing wood-based components using computer numerical controlled machines which focuses predominately on using data which has been produced by someone else. This unit builds on unit Y29 and introduces the learner to the process of writing part programs either manually or by machine specific software.

AC 1.2: Tutors should be aware of timber technology with reference to the characteristics of wood-based materials.

AC 1.18: Maintenance here refers to cleaning, lubrication, storage not sharpening.

Unit 310

Manufacturing wood-based components using profiling machines

UAN:	J/503/2239
Level:	3
Credit value:	10
GLH:	90
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to develop the knowledge, understanding and skills, required to set up and operate a range of profiling machines to produce curved profiles on wood-based components within the relevant sector of industry.

Learning outcome

The learner will:

- LO1 understand the process of setting up and operating profiling machines to produce a range of curved profiles on wood-based components

Assessment criteria

The learner can:

- AC1.1 describe **specifications** used to produce complex profiles on wood-based components
- AC1.2 describe **characteristics** of **wood-based materials** that affect selection
- AC1.3 explain how to store wood-based materials
- AC1.4 describe the function of **profiling machines**
- AC1.5 identify types of **profile cutters** and their application
- AC1.6 describe the design of profile cutters
- AC1.7 describe the setting up **operations** of profiling machines
- AC1.8 explain the application of component **feed and dimensional control devices**
- AC1.9 describe how wood-based materials are **supported** throughout the machining process
- AC1.10 list a range of **curved profiles** and identify the most suitable profile cutter and profiling machines for each
- AC1.11 identify relevant **health and safety guidelines**

AC1.12 describe the purpose of a risk assessment
AC1.13 describe how to resolve **problems** that can occur in the profiling process
AC1.14 describe how waste material is cleared and disposed of
AC1.15 explain the importance of **maintenance schedules**
AC1.16 describe how to **maintain profile machines and cutters**.

Range

Specifications

Drawings, specifications, schedules, cutting lists, risk assessments, manufacturers' information, tolerances

Characteristics

Shakes, knots, waney edge, sap, cupping, bowing, springing, twisting, splitting, fungal staining, fungal and insect attack, moisture content, kilning defects, case hardening, timber conversion, working properties

Wood-based materials

Hardwood, softwood, manufactured board

Profiling machines

Vertical spindle moulding machine (shaped work) routing machines (shaped work)

Profile cutters

Solid profile block, rebate block, wobble saw, flat plate groove saw, adjustable groove head, variable angle bevelling blocks, limited cutter projection tooling, router cutters

Operations

Isolation, start up and shut down of machine, handling, fitting and adjustment of profile cutters, tooling and equipment, guards, LEV, use and manufacture of feed and dimensional control devices

Feed and dimensional control devices

Push sticks, ring-fence, pressure pads, jigs, auxiliary tables, bed piece, shop made devices

Supported

Extension tables, support rollers, supporting personnel

Curved profiles

Grooving curved component, rebating curved component, bevelling curved component, contour moulding curved component, stopped profiles on curved component

Health and safety guidelines

Manufacturers' instructions, Health and Safety at Work Act (HASWA), Provision and Use of Work Equipment Regs (PUWER), Manual Handling Operations Regs, Control of Substances

Hazardous to Health Regs (COSHH), Control of Noise at Work Regs, Electricity at Work Regs, Personal Protective Equipment Regs (PPE) and related Approved Codes of Practice (ACOP)

Problems

Machine malfunction, wood-based component reveals or develops undesirable characteristic during processing

Maintenance schedules

Visual inspection, routine maintenance, lubrication schedule, servicing schedule timetable

Maintain profiling machines and profile cutters

Cleaning, lubrication, oiling, clearing resin build up, planned preventative measures

Learning outcome

The learner will:

LO2 be able to operate the profiling machine safely whilst producing curved profiles on wood based components to specifications

Assessment criteria

The learner can:

AC2.1 produce and extract data from specifications

AC2.2 select profiling machines to meet specifications

AC2.3 carry out a risk assessment

AC2.4 carry out setting up operations to meet specifications

AC2.5 demonstrate **safe practices** when hand feeding wood-based components through profiling machines

AC2.6 feed wood-based components through profiling machines at controlled pace to obtain the desired surface finish

AC2.7 produce curved profiles on wood-based materials

AC2.8 resolve problems as and when they occur

AC2.9 maintain a tidy work area, organise tools and equipment for effective working

AC2.10 comply with the relevant health and safety guidelines.

Range

Safe practices

Use of feed and dimensional control devices, position of hands and body in respect of proximity to profile cutter and moving component in the event of component 'kick-back'

Unit 310

Manufacturing wood-based components using profiling machines

Supporting information

Unit range

Learner must use at least one CNC machine and produce a selection of CNC profiles listed in the range.

Guidance

It is expected that the learner will have completed unit Y29 Manufacturing wood-based components using profiling machines which focuses predominately on producing profiles on 'straight work'. This unit builds on unit Y29 and introduces curved work which is carried out on a vertical spindle moulder using a 'ring fence'. This is regarded as a hazardous process due to the change of grain direction on the curved wood-based component which can cause 'kickback'.

AC 1.2: Tutors should be aware of timber technology with reference to the characteristics of wood based materials.

AC 1.14: Maintenance here refers to cleaning, lubrication, storage not sharpening.

Unit 311

Produce drawings using CAD

UAN:	M/503/0422
Level:	3
Credit value:	9
GLH:	80
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	This unit enables the candidate to develop the skills and knowledge in computer aided design (CAD), in terms of producing 2D and 3D drawings, including the use of 3D modelling methods. Although most of the commands referred to are generic and would apply to all CAD systems, some terms may be specific to one particular application (e.g. AutoCAD). Where this is the case an equivalent alternative application commands may be appropriate.

Learning outcome

The learner will:

LO1 be able to set-up to produce CAD drawings

Assessment criteria

The learner can:

- AC1.1 explain the function of hardware components used for CAD which are unique to CAD
- AC1.2 explain the function of data input devices used in CAD
- AC1.3 explain the function of data output devices used in CAD
- AC1.4 explain CAD software requirements
- AC1.5 evaluate methods of data storage and make recommendations for their use
- AC1.6 explain the reasons for backup files and saving drawings at regular intervals
- AC1.7 describe the role of drawings in communicating technical information
- AC1.8 critically compare CAD systems with manual draughting methods
- AC1.9 explain the purpose of prototype drawings and how they are used
- AC1.10 set drawing aids
- AC1.11 create layers

- AC1.12 set drawing limits to suit component dimensions
- AC1.13 set suitable drawing parameters
- AC1.14 use main menu drawing commands to produce a variety of different shapes
- AC1.15 create, save and load a range of library drawings.

Learning outcome

The learner will:

- LO2 be able to produce 2d CAD drawings

Assessment criteria

The learner can:

- AC2.1 set drawing parameters on the CAD system
- AC2.2 explain the reasons for using structured layers and how they are created
- AC2.3 explain the function of the commands used in producing 2D CAD drawings
- AC2.4 produce 2D CAD drawings that contain essential technical information
- AC2.5 apply standard conventions to 2D CAD drawings
- AC2.6 differentiate between absolute, relative (incremental) and polar co-ordinate systems
- AC2.7 differentiate between world and user co-ordinate systems
- AC2.8 review and revise 2D CAD drawings by editing and manipulating graphical data
- AC2.9 produce text on 2D CAD drawings
- AC2.10 import and position library items onto 2D CAD drawings
- AC2.11 apply conventions relating to dimensioning to 2D CAD drawings
- AC2.12 apply the conventions for cross-hatching areas to 2D CAD drawings
- AC2.13 save drawings using appropriate file names
- AC2.14 load and edit existing drawings
- AC2.15 evaluate the process of producing a 2D CAD drawing and recommend improvements to the process.

Learning outcome

The learner will:

- LO3 be able to produce 3d CAD drawings

Assessment criteria

The learner can:

- AC3.1 explain the role of detail and assembly drawings
- AC3.2 critically compare the 3D CAD drawing visual representation methods available
- AC3.3 explain the function of the commands used in producing 3D CAD drawings
- AC3.4 produce 3D CAD drawings that contain essential technical information
- AC3.5 review and revise 3D CAD drawings by editing and manipulating graphical data

- AC3.6 apply the shading and rendering to 3D CAD drawings
- AC3.7 save drawings using appropriate file names
- AC3.8 load and edit existing drawings.

Learning outcome

The learner will:

- LO4 be able to produce hard copies of CAD drawings

Assessment criteria

The learner can:

- AC4.1 print/plot hard copies of different sized CAD drawings
- AC4.2 print/plot hard copies of modified CAD drawings
- AC4.3 critically compare types of printer/plotter available
- AC4.4 import drawings into presentation software for demonstration purposes
- AC4.5 transfer CAD data to a computer-aided manufacturing Computer Aided Manufacturing (CAM) system.

Unit 312

Production planning in furniture and furnishing making

UAN:	J/503/2161
Level:	3
Credit value:	18
GLH:	85
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to produce production plans and carry out a supervisory role. The skills covered by the unit include: clarifying information, costing, material for procurement, evaluating and supervising others. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved in developing a production planning. It is envisaged that learners that complete this unit are experienced in making furniture or furnishings as this unit builds upon previous knowledge of production requirements.

Learning outcome

The learner will:

LO1 understand how to plan for production

Assessment criteria

The learner can:

AC1.1 describe **processes** for developing production plans

AC1.2 describe **production planning methods**

AC1.3 explain advantages of production planning methods

AC1.4 explain disadvantages of production planning methods

AC1.5 describe **methods** for planning procurement of materials

AC1.6 explain **costs** of productions

AC1.7 explain roles of **key personnel** in production

AC1.8 describe **record keeping** for production
AC1.9 explain the importance of method statements
AC1.10 describe the content of risk assessments
AC1.11 describe **evaluation** of production processes
AC1.12 describe **stock control methods**.

Range

Processes

Work plans, costing, waste management, production times, route plans

Production planning methods

Bespoke, batch, mass-production, just in time (JIT), cell production, material process steering (MPS), material resource planning (MRP)

Methods

Cutting list, nominal cutting lists, timber volume, material efficiency selection of materials, fixtures and fittings, sundries

Costs

Development costs, materials, labour, overheads (direct, indirect), taxes, delivery, fitting, wastage

Key personnel

Designer, development technician, pre-production, production manager, staff, procurement

Record keeping

Financial control, material usage, labour costs, client communication, work plans, batch details

Evaluation

Efficiency, methods, waste management, safety

Stock control methods

KAIBAN, TPS, bin card, work-in-progress

Learning outcome

The learner will:

LO2 understand how to manage teams and individuals in production

Assessment criteria

The learner can:

- AC2.1 describe how to produce **work plans** in conjunction with team members
- AC2.2 describe the importance of effective communication with teams
- AC2.3 explain the importance of **reviewing** work plans regularly with teams
- AC2.4 describe types of **organisational constraints** which influence production planning
- AC2.5 describe **supervisory** responsibilities
- AC2.6 describe how to give **feedback** to team members
- AC2.7 explain supervisory **health and safety** responsibilities
- AC2.8 explain how to resolve health and safety issues
- AC2.9 describe job roles within production **organisations**.

Range

Work plans

Team targets, individual targets, short term, medium term

Reviewing

Progress, identifying delays, assembly methods, quality

Organisational constraints

Resource availability, time allocation, team members skills, health & safety legalisation

Supervisory responsibilities

Machines, personnel, materials

Feedback

Spoken, written, positive, negative

Health and safety

Industry/sector specific legislation, regulations, guidelines, code of practice relating to carrying out work, for self and others

Organisations

Small, medium, large

Learning outcome

The learner will:

LO3 be able to plan for production

Assessment criteria

The learner can:

AC3.1 produce production plans

- AC3.2 procure materials for production
- AC3.3 carry out costing for production
- AC3.4 carry out **record keeping**
- AC3.5 produce method statements
- AC3.6 carry out risk assessments
- AC3.7 evaluate production processes.

Range

Record keeping

Financial control, material usage, labour costs, client communication, work plans, batch details

Learning outcome

The learner will:

LO4 be able to supervise teams and individuals in production

Assessment criteria

The learner can:

- AC4.1 produce **work plans** in conjunction with team members
- AC4.2 communicate effectively with teams
- AC4.3 review work plans with teams
- AC4.4 carry out **supervisory responsibilities**
- AC4.5 give **feedback** to team members.

Range

Work plans

Team targets, individual targets, short term, medium term

Supervisory responsibilities

Machines, personnel, materials

Feedback

Spoken, written, positive, negative

Unit 313

Prototype design in furniture making

UAN:	M/503/2168
Level:	3
Credit value:	24
GLH:	220
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to develop prototypes using design ideas. Learners will evaluate prototypes and develop a production process. The skills covered by the unit include: clarifying information, research, analysing, evaluating, technical drawing, jig making and costing. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved in developing an item of furniture. It is envisaged that learners that complete this unit are experienced in furniture making, wood machining and technical drawing.

Learning outcome

The learner will:

LO1 understand how to respond to design ideas

Assessment criteria

The learner can:

AC1.1 describe **design prototypes**

AC1.2 describe **reasons** for design prototypes

AC1.3 identify **key personnel** that create design ideas

AC1.4 explain **aims** of design prototypes

AC1.5 describe **stages** of design prototype production

AC1.6 describe **information** required to start creating design prototypes

AC1.7 explain the importance of **product knowledge**

AC1.8 describe **techniques** to meet design objectives

AC1.9 explain how to **evaluate** prototypes

AC1.10 describe **technical constraints** on prototypes

AC1.11 explain the importance of compliance to patents, copyright and intellectual property issues

AC1.12 describe when **negotiation techniques** may be required

AC1.13 describe effective negotiation techniques

AC1.14 describe **data** to be recorded.

Range

Design prototype

2D and 3D models, mock-ups, samples, test pieces, small scale realisation techniques

Reasons

Problem solving, construction, section sizes, jointing, scheme of work, jigs required, derive technical specifications

Key personnel

Client, designer

Aims

Meet design ideas, purpose, durability, strength, aesthetics, budgetary limits

Stages

Design ideas, sketch, basic specification, working drawing, product development, modifications, pre-production, production

Information

Component dimensions, functionality, fittings, fixtures, finish, timescales, materials

Product knowledge

Use of materials, production methods, copyright, intellectual property rights

Techniques

Preparing, forming, jointing, shaping, assembling, finishing

Evaluate

Fit for purpose, match design idea, functional, ongoing

Technical constraints

Manufacturing methods, performance of materials, availability of materials

Negotiation techniques

Preparation, sensitivity, listening skills, compromise, commitment, principles, confirmation of agreement

Data

Scheme of work, production process, timescale, costs

Learning outcome

The learner will:

LO2 know how to create design prototypes

Assessment criteria

The learner can:

- AC2.1 describe **information** required on working drawings
- AC2.2 explain **processes** for developing design prototypes
- AC2.3 identify material **characteristics** that inform component choice
- AC2.4 describe **purposes** of jigs and templates
- AC2.5 describe the process of **evaluating jigs and templates**
- AC2.6 describe the importance of risk assessing jigs
- AC2.7 explain how to **evaluate** design prototypes
- AC2.8 describe functions of **tools and equipment** used in design prototype development
- AC2.9 describe uses of development **materials**
- AC2.10 explain the importance of quality checks
- AC2.11 describe **information** included on template labelling
- AC2.12 explain information that should be included in **technical specifications**
- AC2.13 explain how to calculate cost of component parts
- AC2.14 describe **safe working practice**.

Range

Information

Component sizes, materials, finish, jointing, tolerances, sections, profiles, fixtures and fittings

Processes

Discussion, create shape, create templates, adjusting, evaluating, create technical specifications

Characteristics

Stability, strength, durability, visual

Purpose

Safety, speed, consistency

Evaluating jigs and templates

Wear, Safety, speed, consistency

valuate

Performance, function, ease of use, client response

Tools and equipment

Hand tools, power tools, machines

Materials

Grade of filling, support system type, wood type, metals, fabric, sundries, plastics, cardboard, kiln dried, air dried, man-made board, hide

Information

Abbreviations, centre lines, reference points, model name, date created, created by initials, version

Technical specifications

Units of measurement, conventions, terms used, formats, cutting list, nesting, tolerance

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments, Provision and use of work equipment (PUWER)

Learning outcome

The learner will:

LO3 be able to create design prototypes in furniture making

Assessment criteria

The learner can:

AC3.1 maintain a tidy work area

AC3.2 organise tools and equipment for effective working

AC3.3 select materials for developing prototypes

AC3.4 develop jigs

AC3.5 carry out a risk assessments on jigs

AC3.6 evaluate jigs

AC3.7 create design prototypes

AC3.8 evaluate design prototypes

AC3.9 record data

AC3.10 produce technical specifications of design prototypes.

Unit 314

Prototype design in modern upholstery

UAN:	J/503/2208
Level:	3
Credit value:	24
GLH:	200
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to produce, evaluate and presenting design prototypes for upholstered furniture. The unit introduces learners to negotiation techniques to support communicating with designers and non-designers. The skills covered by this unit include: choice of materials and the influence that ergonomics and anthropometrics have on the functionality of furniture, development techniques in producing prototypes. Also includes the evaluation of design prototypes at various stages including frame stand-up and finished piece.

Learning outcome

The learner will:

LO1 understand how to respond to design ideas

Assessment criteria

The learner can:

AC1.1 identify key personnel that create design ideas

AC1.2 explain **aims** of design prototypes

AC1.3 outline the **stages** of design prototype timeline

AC1.4 describe **information** required to start creating design prototypes

AC1.5 describe **design prototypes**

AC1.6 explain the importance of **product knowledge**

AC1.7 describe **techniques** to meet design objectives

AC1.8 explain how to **evaluate** prototypes

AC1.9 describe **technical constraints** on prototypes

AC1.10 explain the importance of compliance to patents, copyright and intellectual property issues

AC1.11 describe when negotiation techniques may be required

AC1.12 describe effective **negotiation techniques**.

Range

Aims

Meet design ideas, purpose, durability, comfort, appearance, budgetary limits

Stages

Design ideas, sketch, basic specification, working drawing, product development, 'stand up', modifications, pre-production, production

Information

Finished size, level of comfort, functionality, rake of back, length of seat, height of seat, height of arms, distance between arms

Design prototype

2D and 3D models, mock-ups, samples, test pieces, small scale realisation techniques

Product knowledge

Use of materials, current designs, product trends, shapes, styles, copyright, intellectual property rights

Techniques

Preparing, forming, joining, assembling, manipulating, editing, finishing

Evaluate

Fit for purpose, match design brief, functional, ongoing

Technical constraints

Manufacturing methods, performance of materials, availability of materials

Negotiation techniques

Preparation, sensitivity, listening skills, compromise, commitment, principles, confirmation of agreement

Learning outcome

The learner will:

LO2 know how to create design prototypes

Assessment criteria

The learner can:

- AC2.1 explain **techniques** used in frame design
- AC2.2 describe uses of common piece parts
- AC2.3 describe purposes of **materials**
- AC2.4 explain **factors** affecting material choice
- AC2.5 explain **processes** for developing design prototypes
- AC2.6 explain how to **evaluate** design prototypes
- AC2.7 describe functions of **tools and equipment** used in design prototype development
- AC2.8 describe uses of **development materials**
- AC2.9 describe **tolerance** levels of component parts
- AC2.10 explain the importance of quality checking templates
- AC2.11 describe **information** included on template labelling
- AC2.12 explain the importance of compliance with furniture **standards**
- AC2.13 explain information that should be included in **technical specifications**
- AC2.14 explain how to calculate cost of component parts
- AC2.15 describe **safe working practice**.

Range

Techniques

Anthropometrics, ergonomics, working drawing, rake, jointing, material, shape, common piece parts

Materials

Grade of filling, support system type, wood type, metals, fabric, sundries, plastics, cardboard, kiln dried, air dried, man-made board, hide

Factors

Cost, durability, firmness, softness, complex shape, time restraints, availability

Processes

Discussion, create shape, create templates, development fabric, recording, measuring, drawing, adjusting, evaluating, pinning, trimming, create technical specifications

Evaluate

Performance, function, ease of use, user/audience response

Tools and equipment

Foam cutter, screw gun, jig saw, scissors, ruler, set square, measuring tape, protractor, staple gun, staple lifter, hammer, buttoning needle, sewing machine, overlocker

Development materials

Striped, perspex, calico

Tolerance

Stretch and non stretch fabric, natural hide, shape, dimension

Information

Abbreviations, pattern lines, centre lines, notches, model name, date created, version

Standards

Furniture and furnishings (fire safety) regulations, British Standard, CE

Technical specifications

Units of measurement, conventions, terms used, formats, cutting list, cutting plans, frame drawings

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments, Provision and use of work equipment (PUWER)

Learning outcome

The learner will:

LO3 be able to create design prototypes for modern upholstery

Assessment criteria

The learner can:

AC3.1 produce frame drawings using design briefs

AC3.2 create design prototypes for items of modern upholstery

AC3.3 evaluate design prototypes

AC3.4 produce technical specifications of design prototypes

AC3.5 calculate cost of component parts.

Unit 315

Research and product design in furniture making

UAN:	T/503/2172
Level:	3
Credit value:	12
GLH:	80
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to work through a design cycle and to evaluate a design against a brief and research. The skills covered by the unit include: clarifying information, research, analysing, evaluating and drawing. The knowledge acquired by the learner will enable them to take responsibility for initiating and completing tasks and the key processes involved in designing furniture.

Learning outcome

The learner will:

LO1 understand how to respond to design briefs

Assessment criteria

The learner can:

AC1.1 explain the use of designs

AC1.2 explain **design brief** objectives

AC1.3 describe stages of the **design process**

AC1.4 explain how to predict **viability** of designs

AC1.5 explain the importance of **product knowledge**

AC1.6 identify **periods of design**

AC1.7 explain importance of thorough evaluation of research

AC1.8 explain how to prepare **visual interpretations** of designs

AC1.9 describe how designs can impact **visual features** of products

AC1.10 explain how to work out golden sections

AC1.11 describe **applications** of golden sections

AC1.12 describe how to **communicate** design proposals
AC1.13 explain how **final designs** will be used
AC1.14 describe **factors** to evaluate during design processes
AC1.15 describe **recording techniques**.

Range

Design brief

Function, durability, strength, aesthetics, budgetary limits, batch production, one-off

Design process

Discussion, design brief, initial drawings, material research, market research, ergonomics, development, evaluation, final ideas, presentation

Viability

Manufacturing methods, new materials, production costs

Product knowledge

Current designs, product trends, styles, sustainability, copyright, intellectual property rights, characteristics of materials

Periods of design

1850 to present

Visual interpretation

Sketches, presentation drawings, working drawings, models, samples, CAD drawing, multimedia presentation, graphic artwork, 3D displays (models, samples and prototypes), renderings

Visual features

Height, mechanisms, shape, position of fixtures and fittings, ergonomics

Applications

Drawers, ratio

Communicate

Perspective drawings, renderings, plan view, CAD, verbal description, written description, photos, research, roles and responsibilities

Final design

Realised, produced, installed, replicated

Factors

Function, ergonomics, aesthetics, cost, production time, process

Recording techniques

Minutes, notes, follow up letters, action plans, visual recording

Learning outcome

The learner will:

LO2 be able to respond to design briefs

Assessment criteria

The learner can:

AC2.1 maintain a tidy work area

AC2.2 organise tools and equipment for effective working

AC2.3 research design briefs

AC2.4 carry out **design processes**

AC2.5 use **golden sections** in furniture designs

AC2.6 present final designs

AC2.7 evaluate design processes.

Range

Design process

Discussion, design brief, initial drawings, material research, market research, ergonomics, development, evaluation

Golden section

Ratio, drawer grading

Unit 316

Research and product development for modern furniture upholstery

UAN:	A/503/2206
Level:	3
Credit value:	20
GLH:	160
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to research, evaluate, produce and present design ideas for upholstered furniture. The skills covered by this unit include: researching new materials, new manufacturing techniques and the influence that ergonomics and anthropometrics have on the functionality of furniture. Also includes the evaluation of design briefs using qualitative and quantitative research techniques to produce drawings in different forms of media. Learners will gain presentation skills required to take designs forward into the development stage.

Learning outcome

The learner will:

LO1 understand how to respond to design briefs

Assessment criteria

The learner can:

AC1.1 explain the use of designs

AC1.2 explain **design brief** objectives

AC1.3 describe stages of the **design process**

AC1.4 explain how to predict **viability** of designs

AC1.5 explain the importance of **product knowledge**

AC1.6 explain importance of thorough evaluation of research

AC1.7 explain how to prepare **visual interpretations** of designs

AC1.8 describe how designs can impact **visual features** of products

AC1.9 describe how to **communicate** design proposals
AC1.10 explain how to make **recommendations** in support of design options
AC1.11 explain how **final designs** will be used
AC1.12 describe **recording techniques**.

Range

Design brief

Function, durability, strength, aesthetics, budgetary limits, batch production, one-off

Design process

Discussion, design brief, initial drawings, material research, market research, ergonomics, development, evaluation, final ideas, presentation

Viability

Manufacturing methods, new materials, production costs

Product knowledge

Current designs, product trends, styles, sustainability, copyright, intellectual property rights, characteristics of materials

Periods of design

1850 to present

Visual interpretation

Sketches, presentation drawings, working drawings, models, samples, CAD drawing, multimedia presentation, graphic artwork, 3D displays (models, samples and prototypes), renderings

Visual features

Height, mechanisms, shape, position of fixtures and fittings, ergonomics

Applications

Drawers, ratio

Communicate

Perspective drawings, renderings, plan view, CAD, verbal description, written description, photos, research, roles and responsibilities

Final design

Realised, produced, installed, replicated

Factors

Function, ergonomics, aesthetics, cost, production time, process

Recording techniques

Minutes, notes, follow up letters, action plans, visual recording

Learning outcome

The learner will:

LO2 be able to respond to design briefs

Assessment criteria

The learner can:

AC2.1 explain how to evaluate **design ideas** against brief

AC2.2 describe **quantitative** evaluation techniques

AC2.3 describe **qualitative** evaluation techniques

AC2.4 describe current British and European **performance standards**

AC2.5 describe **technical constraints** on research and product design.

Range

Design ideas

Fitness for purpose, aesthetic qualities, ergonomics, anthropometrics

Quantitative

Measuring, weighing, performance testing, fitting

Qualitative

Focus groups, surveys, self evaluation

Performance standards

Research organisations, durability, performance of fabrics and foam, dimensional standards

Technical constraints

Manufacturing methods, performance of materials, availability of materials

Learning outcome

The learner will:

LO3 be able to produce design ideas for modern upholstery

Assessment criteria

The learner can:

AC3.1 carry out research to inform design ideas

AC3.2 produce design ideas

AC3.3 produce design visuals

AC3.4 communicate design ideas

AC3.5 evaluate design ideas.

Unit 317

Restoration of traditional furniture upholstery

UAN:	T/503/2205
Level:	3
Credit value:	29
GLH:	250
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to research, evaluate, produce and present restoration ideas for traditional upholstered furniture. The unit also looks at situations where replication may be required. The skills covered by this unit include: researching traditional materials, traditional manufacturing techniques and the influence that designers and period furniture had on the development of furniture. Also includes the evaluation of reproducing traditional materials via modern manufacturing methods to maintain authenticity of the piece.

Learning outcome

The learner will:

LO1 know how to research traditional furniture upholstery

Assessment criteria

The learner can:

AC1.1 explain the importance of following upholstery **restoration principles**

AC1.2 describe **situations** where upholstery reproduction occurs

AC1.3 describe **sources** that can provide valid information

AC1.4 explain the importance of understanding **original production techniques**

AC1.5 explain the importance of understanding uses of **original materials**

AC1.6 describe **historical techniques** for furniture production that are still in use today

AC1.7 describe **historical materials** for furniture production that are still in use today

- AC1.8 explain **situations** where use of modern materials and techniques will substitute traditional methods
- AC1.9 describe the importance of **recording** solutions to problems
- AC1.10 describe information that should be recorded
- AC1.11 describe **problems** likely to be associated with restoring traditionally upholstered furniture
- AC1.12 explain importance of thorough **evaluation** of research.

Range

Restoration principles

Like for like, ethical, sympathetic, historical research

Situations

Replication, market demand, continuing traditional methods, period dramas

Sources

Primary (other people, professional/trade organisations), secondary (historical records, period furniture, designers, manufacturers specifications, internet)

Original production techniques

Performance, construction (iron back and wooden frame), design, application sequence, foundations

Original materials

Fillings, fabrics (silk, tapestry), suspension systems, supports, foundations

Historical techniques

Deep buttoning (square, diamond, coach buttoning), Vandyke join, scroll arm, sprung edge

Historical materials

Horse hair, coir fibre, mocca cane, jute webbing, sprung units, fabrics (velvet, silk, cotton, cambric)

Situations

Furniture fire safety regulations, materials unavailable

Recording

Research notes, supplier information, sources, referencing, photo log, timesheet, action plan

Problems

Infestation, broken frame, discontinued material

Evaluation

Quality, cost, availability, reliability, reproduction

Learning outcome

The learner will:

LO2 know how to restore items of traditional furniture upholstery

Assessment criteria

The learner can:

AC2.1 explain the importance of seeking client agreement when creating action plans

AC2.2 describe supplies needed for common upholstery **restoration** commissions

AC2.3 explain **specification** content for restoring traditional furniture

AC2.4 describe **record keeping** for dismantling furniture

AC2.5 explain how to **dismantle** furniture during upholstery restoration

AC2.6 explain the diverse nature of **materials** in upholstery

AC2.7 describe **measures** to avoid further damage

AC2.8 describe **repairs** during upholstery restoration

AC2.9 describe reassembly methods

AC2.10 explain uses of **tools and equipment** during upholstery restoration

AC2.11 explain **professional approaches** to delivering restoration results

AC2.12 describe **client characteristics**

AC2.13 describe **safe working practice**.

Range

Restoration

Traditional, antique, rarity, value

Specification

Quality criteria to be met, budgetary limits, timescale for the work, materials required, techniques to be used

Record keeping

Referencing, photo log, timesheet, cost analysis against estimate, action plan

Dismantle

Sequence, referencing

Materials

Natural, man-made, synthetic

Measures

Infestations, conservation, aftercare advice

Repairs

Frame repairs, replicating, cleaning, re-fill, replace, re-stitch

Tools and equipment

Needles, hammer, tacks, twine, spring twine, web strainer

Professional approaches

Sympathetic, knowledgeable, offering options, solution driven, keeping client updated

Client characteristics

Private, corporate (gallery, period drama), antique dealer

Safe working practice

PPE, legal requirements, Health and Safety at work act (HASAWA), control of substances hazardous to health (COSHH), Risk assessments

Learning outcome

The learner will:

LO3 be able to restore items of traditional furniture upholstery

Assessment criteria

The learner can:

AC3.1 identify sources of information

AC3.2 communicate with clients to understand specifications

AC3.3 research items of traditional furniture upholstery

AC3.4 develop understanding of original techniques and materials used

AC3.5 create restoration action plans

AC3.6 carry out restoration to items of traditional furniture upholstery

AC3.7 record restoration information.

Unit 318

Site survey for furniture installation

UAN:	K/503/2203
Level:	3
Credit value:	11
GLH:	89
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	This unit introduces learners to the importance of communicating effectively during site surveys with key personnel. The unit explores data and recording methods, taking measurements and interpreting findings into surveys. The unit looks at industry standard construction floor plan symbols and covers key health and safety for site work.

Learning outcome

The learner will:

LO1 know how to communicate during a site survey for furniture installation

Assessment criteria

The learner can:

AC1.1 describe **characteristics** of good customer service

AC1.2 describe effective **negotiation techniques**

AC1.3 identify **key personnel** on site

AC1.4 explain the importance of clarifying the role **site surveys** to key personnel

AC1.5 describe **data** required from the site survey.

Range

Characteristics

Deliver on promises, keeping the customer updated, exceeding expectations, listen to customers, respond to complaints, be helpful at all times, well trained staff, tailor services to

the individual, knowing and understanding customer requirements, flexibility, leadership, task orientation, strong work ethic

Negotiation techniques

Preparation, sensitivity, listening skills, compromise, commitment, principles, confirmation of agreement

Key personnel

Designer, client, fitter, site manager, colleagues

Site survey

Carcasses, frameworks, assembled units, shutters, blinds, window treatments, upholstered items, polished items

Data

Electrical, water, gas, ventilation, communication wires, backgrounds, dimensions, plumb level, square, hazardous substances

Learning outcome

The learner will:

LO2 know how to survey a location

Assessment criteria

The learner can:

AC2.1 describe **tools and equipment** used during site surveys

AC2.2 describe how to care for measuring tools and equipment

AC2.3 describe **formats** of recording data

AC2.4 state **features** of locations that determine critical points of measurements

AC2.5 describe how **background** affects the points of measurement

AC2.6 describe how to determine the type of background

AC2.7 state industry standard construction **architectural symbols**

AC2.8 explain the importance of recording background condition

AC2.9 describe **characteristics** of location that may affect installations

AC2.10 explain why recording locations of services are relevant to a site survey

AC2.11 describe the importance of quality checks

AC2.12 identify **safe working practice** during site surveys

AC2.13 describe health and safety information that may affect an installation.

Range

Tools and equipment

Measuring tapes/rules/ sticks, electronic devices, stud/metal detectors, spirit level, laser level, plumb line

Format

Measurement recording systems, drawings, specification, site plans, paperwork, customer requirements, millimetres, metres, verbal, written, pictorial, electronic, plan-view, perspective

Features

Level, square, true, plumb

Background

Brick, concrete, wood, steel, plasterboard and cavity

Architectural symbols

Wall construction, windows, doors, electrical, water, gas, ventilation, heating

Characteristics

Site security, access, storage, deliveries

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments, Site requirements

Learning outcome

The learner will:

LO3 be able to survey a location

Assessment criteria

The learner can:

AC3.1 select measuring tools and equipment

AC3.2 demonstrate how data is recorded

AC3.3 complete site surveys

AC3.4 record industry standard construction **architectural symbols** to industry practice

AC3.5 demonstrate quality checking measures.

Range

Architectural symbols

Wall construction, windows, doors, electrical, water, gas, ventilation, heating

Unit 319

Supervision in a furniture and furnishing making environment

UAN:	F/503/2191
Level:	3
Credit value:	10
GLH:	80
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Short answer
Aim:	This unit explores supervising in a furniture and furnishing making environment, giving candidates the tools to successfully performance manage team members and to supervise and run operations. The unit looks at leadership styles, communication techniques and ways to motivate staff. The unit also looks at stock control and scheduling workloads. The unit reinforces previous health and safety knowledge and builds upon this in a supervisory context.

Learning outcome

The learner will:

LO1 understand how to mentor staff in a furniture and furnishing making environment

Assessment criteria

The learner can:

AC1.1 describe **styles** of leadership

AC1.2 describe **factors** which contribute to good working relationships

AC1.3 describe **how** colleagues can assist one another

AC1.4 describe how to check understanding of information provided to staff

AC1.5 describe the importance of providing effective **advice**

AC1.6 explain the **importance** of teamwork

AC1.7 explain how to recognise **individual team member's strengths**

AC1.8 describe how to identify training needs

AC1.9 describe how to create training matrices

AC1.10 describe **supervisory responsibilities**

AC1.11 describe **methods** of encouraging team members
AC1.12 describe **difficulties** that may arise when supervising staff.

Range

Styles

Autocratic, democratic, delegative

Factors

Positive behaviour, quick and effective response to feedback, patience, sense of humour, pleasant manner, self organisation, eye contact, respect for self and others and a willingness to co-operate, positive leadership skills

How

Advice, assistance, support, constructive feedback, sharing experience and ideas

Advice

Accurate, current and meets health and safety requirements

Importance

Portray organisation in a positive way, effective and efficient delivery of services for customers and staff, safety, staff morale, encourages loyalty, improves performance, achieving targets

Individual team member's strengths

1:1s, observation, discussion

Supervisory responsibilities

Machines, personnel, materials

Methods

Praise, support, guidance

Difficulties

Conflict, poor performance, resource shortages

Learning outcome

The learner will:

LO2 understand how to supervise operations in a furniture and furnishing making environment

Assessment criteria

The learner can:

AC2.1 describe how to schedule workloads for team

AC2.2 describe the importance of involving team members in planning team objectives

AC2.3 describe **production planning methods**

AC2.4 describe how to monitor effectiveness of operations

AC2.5 describe methods of supporting team members in identifying problems

AC2.6 identify **stock control methods**

AC2.7 identify opportunities for **changes** to manufacturing operations

AC2.8 describe health and safety responsibilities

AC2.9 describe how to resolve health and safety issues.

Range

Production planning methods

Bespoke, batch, mass-production, just in time (JIT), cell production, material process steering (MPS), material resource planning (MRP)

Stock control methods

KAIBAN, TPS, bin card, work-in-progress

Changes

New manufacturing requirements, adaptations to equipment or processes, new materials

Unit 320

Supervision of fitted furniture installation

UAN:	M/503/2204
Level:	3
Credit value:	7
GLH:	51
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The unit explores communication and customer service skills to support learners to meet client requirements. The unit also covers key health and safety responsibilities required during supervision. Learners will learn how to liaise with external contractors to ensure to ensure effective coordination of installation. This unit requires learners to schedule installations; explore supervising responsibilities and quality check an installation during and on completion. Learners will look at the outcomes that make a quality installation and the documentation that could be used to record faults and taking corrective action. It is envisaged that learners that complete this unit are experienced installers as this is a supervisory unit that builds upon that knowledge and experience. The unit will support learners who specialise in fitting furniture and furnishings including window treatments.

Learning outcome

The learner will:

LO1 understand how to liaise with external contractors in fitted furniture installation

Assessment criteria

The learner can:

AC1.1 explain how to **communicate effectively**

AC1.2 describe effective **negotiation techniques**

AC1.3 describe **behaviour** that supports working onsite

AC1.4 identify **external contractors** required to meet client requirements

AC1.5 explain **effective coordination** of external contractors.

Range

Communicate effectively

Eye contact, friendliness, body language, tone, communication, responding to language barriers

Negotiation techniques

Preparation, sensitivity, listening skills, compromise, commitment, principles, confirmation of agreement

Behaviour

Deliver on promises, keeping the customer updated, exceeding expectations, listen to customers, respond to complaints, be helpful at all times, tailor services to the individual, knowing and understanding customer requirements, flexibility, strong work ethic

External contractors

Electrician, gas, plumber, ventilation, decorator, refrigeration, window fitters, designers, polishers, installers, project manager

Effective coordination

Communication, scheduling, Gantt charts, project plans, process plans, cost effective use of contractor time

Learning outcome

The learner will:

LO2 know supervisory responsibilities for fitted furniture installation

Assessment criteria

The learner can:

AC2.1 describe **supervisory responsibilities**

AC2.2 describe **difficulties** that may arise when supervising fitted furniture installation

AC2.3 identify **key personnel** required to communicate with during installation

AC2.4 explain how to schedule workloads for installers

AC2.5 describe **health and safety responsibilities**

AC2.6 explain how to resolve health and safety issues

AC2.7 explain how to **monitor** fitted furniture installation

AC2.8 describe **formats** for recording data to support the installation process

AC2.9 explain the importance of quality checks on fittings prior to installation

AC2.10 describe **quality check evaluations** during installation

AC2.11 describe **outcome qualities** from furniture installation

AC2.12 describe **faults** in installation

AC2.13 explain **responsibilities** for rectifying faults in installation.

Range

Supervisory responsibilities

Monitor fitted furniture installation, liaise with external contractors, liaise with clients, quality check, liaise with suppliers

Difficulties

Conflict (suppliers, external contractors, clients), poor performance of fitted furniture staff, resource shortages

Key personnel

External contractors, suppliers, clients, staff, designers

Health and safety responsibilities

Industry/sector specific legislation, regulations, guidelines, code of practice relating to carrying out work, for self and others, risk assessments

Monitor

Regular updates, visual checks, communicating with client, external contractors and installers

Formats

Measurement recording systems, drawings, specification, site plans, paperwork, client requirements, millimetres, metres, verbal, written, pictorial, electronic, plan-view, perspective, schedule

Quality check evaluations

Visual, touch, square, level, meets client specification, quality control form, signing off sheet, time sheet, customer satisfaction form, snagging list

Outcome qualities

Specifications, client requirements, realisation, performance, function, organisation, customer, location, dimensions, construction, finishing, quality of placement, time schedule met

Faults

Material, tools, equipment, components, services, appliances, location, fittings, fixings

Responsibilities

Recognise, rectify, record, replace

Learning outcome

The learner will:

LO3 be able to supervise fitted furniture installation

Assessment criteria

The learner can:

AC3.1 liaise with key personnel

AC3.2 schedule workload for installation

AC3.3 carry out supervision of furniture installation

AC3.4 complete **quality check evaluations**

AC3.5 rectify faults in installation

AC3.6 demonstrate how data is recorded.

Range

Quality check evaluations

Customer satisfaction form, snagging list

Unit 321

Traditional mattress manufacture

UAN:	F/503/2207
Level:	3
Credit value:	11
GLH:	105
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to provide the learner with the knowledge and skills to prepare and produce traditional mattresses. The learner is required to conduct historical research to understand traditional techniques and materials. The skills covered by this unit include: preparing the mattress assembly, application of suspensions and filling materials to form the shape, positioning and securing top covers, tufting/finishing, tape edging. It is envisaged that learners that complete this unit are experienced in mattress making as this is a specialised unit that builds upon that knowledge.

Learning outcome

The learner will:

LO1 understand the history of traditional mattress production

Assessment criteria

The learner can:

AC1.1 identify materials used in different **historical periods**

AC1.2 explain the importance of understanding traditional mattress **production techniques**

AC1.3 explain the importance of understanding **uses** of traditional materials

AC1.4 describe **traditional techniques** for mattress production that are still in use today

AC1.5 describe **traditional materials** for mattress production that are still in use today

AC1.6 explain market demand for traditional mattress production.

Range

Historical periods

16th Century to 20th Century

Production techniques

Performance, construction (wooden frame), design, application sequence, foundations

Uses

Fillings, suspension systems, supports, foundations

Traditional techniques

Firm edge, sprung units, hand stitching, hand tufting, foundations, tape edging

Traditional materials

Lambs wool, organic wool, cotton felt, cashmere, mohair, silk, hand teased hair, long stranded hair pad, wool felt, polyester fibre, waxed cambric, hessian, coir fibre, coco lock fibre, pocketed springs, panels, thread

Learning outcome

The learner will:

LO2 understand how to prepare traditional mattresses for assembly

Assessment criteria

The learner can:

AC2.1 describe the purpose of technical specifications

AC2.2 list **terms** used in technical specifications

AC2.3 explain handling characteristics of **support materials**

AC2.4 explain purposes of different support materials

AC2.5 describe **methods** used in mattress production

AC2.6 describe sequences for building foundations

AC2.7 describe functions of different **tools and equipment** used in mattress preparation

AC2.8 describe **faults** that may occur during mattress preparation

AC2.9 identify **safe working practice** when using materials in mattress preparation.

Range

Terms

Material, quality to be achieved, tolerance, dimensions, visual appearance, filling type, item type

Support materials

Lambs wool, organic wool, cotton felt, cashmere, mohair, silk, hand teased hair, long stranded hair pad, wool felt, polyester fibre, waxed cambric, hessian, coir fibre, coco lock fibre, pocketed springs, panels, thread

Methods

Building foundation, securing foundation (side blind top or roll stitching)

Tools and equipment

Packing needle, stitching needle, thread, tufting needle, regulator

Faults

Tools and equipment, quality, application, positioning, tape edging

Safe working practice

PPE, legal requirements, Approved Code of Practice (ACOP), Health and Safety At Work Act (HASAWA), Control of Substances Hazardous to Health (COSHH), Risk Assessments

Learning outcome

The learner will:

LO3 understand how to produce traditional mattresses

Assessment criteria

The learner can:

- AC3.1 describe handling characteristics of **finishing materials**
- AC3.2 describe sequences for assembling mattresses by hand
- AC3.3 describe **methods** for hand finishing mattresses
- AC3.4 describe **faults** that may occur during assembly processes
- AC3.5 describe the importance of minimising waste
- AC3.6 describe **processes** for dealing with problems
- AC3.7 describe **quality checking measures**.

Range

Finishing materials

Damask tick, twine and hand fitted woollen tufts, thread, tape edging, filler cord

Methods

Mattress positioning, vertical application, alignment, tape edging, hand stitching, hand tufting

Faults

Material defects, colour/pattern mismatching, non functional equipment, tensioning, shape, size, stitching errors, broken thread, broken needle

Processes

Reject, replace, rectify, report, work around material defects

Quality checking measures

Visual, measurement

Learning outcome

The learner will:

LO4 be able to produce traditional mattresses

Assessment criteria

The learner can:

AC4.1 carry out historical research on traditional mattress production

AC4.2 maintain a tidy work area

AC4.3 organise tools, equipment and materials

AC4.4 carry out building mattress foundations by hand

AC4.5 produce traditional mattresses

AC4.6 carry out quality checks.

Unit 322

Workflow management in woodmachining

UAN:	F/503/2210
Level:	3
Credit value:	11
GLH:	85
Endorsement by a sector or regulatory body:	This unit is endorsed by ProSkills.
Assessment type:	Assignment
Aim:	The aim of this unit is to develop the knowledge, understanding and skills, required to manage the workflow of wood-based components through the manufacturing process within the woodworking sector. This involves the smooth 'workflow' of the raw material in the production of wood-based components. The management and supervision of people involved in production and recognised manufacturing systems.

Learning outcome

The learner will:

- LO1 understand how to plan the workflow of wood-based materials in the production of wood-based components

Assessment criteria

The learner can:

- AC1.1 describe **sources of information** used to plan the workflow of wood-based components through the manufacturing process
- AC1.2 outline the types of **payment systems** on production planning and its effect on production
- AC1.3 describe the main elements of a **cost sheet**
- AC1.4 describe the methods used to prepare **estimates**
- AC1.5 describe **arithmetical processes** to work out measurements, time scales and costs
- AC1.6 describe the **factors** governing the planning of production in the machine shop
- AC1.7 describe the various **production systems**
- AC1.8 outline the advantages and disadvantages of just in time production
- AC1.9 describe methods of **storage**

AC1.10 describe **office procedures** with regard to information handling and storage.

Range

Sources of information

Specifications, risk assessments, manufacturers' information, cutting lists, job sheets, time sheets, reports

Payment systems

One off payment, stage payments, timework, piecework, payment by results (PBR) measured day work (MDW)

Cost sheet

Labour, materials, operating costs, direct and indirect costs

Estimates

Estimating from:- historical data, specifications, schedules, material supply, allowances for internal and external factors, methods of revision, correction and up-dating

Arithmetical processes

Applied to unit costing, calculations for the economical use of materials and time

Factors

Man power, skill levels, processes, machinery and equipment, resources, time scales, allied trades and industries

Production systems

One off unit production, batch unit production, mass unit production

Storage

Wood-based materials, tooling, grinding wheels, sanding belts, jigs and saddles, stacking components

Office procedures

Jobs in progress - trays on a desk, filing of documents – filing cabinets, clipboards - job sheets notice board – visual progress charts, shelves – trade catalogues, binders, messages and internal post – pigeon holes, drawings – plan chest, forms – drawers, confidential reports – locked drawer or cupboard

Learning outcome

The learner will:

LO2 understand the movement through a workshop of wood-based materials in the production of wood-based components

Assessment criteria

The learner can:

- AC2.1 state the factors that influence the layout of a workshop to facilitate the workflow of wood-based materials through the production process
- AC2.2 explain principles of **materials handling**
- AC2.3 identify the types of **handling devices**
- AC2.4 describe the factors affecting the workload of departments on the **input and output** of wood-based materials and wood-based components
- AC2.5 describe how planned preventive maintenance can reduce machine down time
- AC2.6 explain the importance of **maintenance schedules** with regards to workflow management
- AC2.7 outline the various means used for waste extraction and disposal
- AC2.8 describe the benefits of good housekeeping on the workflow of productivity
- AC2.9 describe the **legal requirements** for safety in workshops and explain how to implement them into the workflow management process.

Range

Materials handling

Movement through the workshop of:- raw material, finished product, components and work in progress, sub assemblies, job cards/sheets and other systems of paperwork

Handling devices

Trolleys, hand operated trucks, power operated trucks, slides, conveyors, vacuum holding

Input and output

Input cycles, machining cycles, output dispersal, either serving or serviced by the machine shop, prioritising workload

Maintenance schedules

Visual inspection, routine maintenance, lubrication schedule, servicing schedule timetable

Legal requirements

Health and Safety at Work Act (HASWA), Provision and Use of Work Equipment Regs (PUWER), Manual Handling Operations Regs, Control of Substances Hazardous to Health Regs (COSHH), Control of Noise at Work Regs, Electricity at Work Regs, Personal Protective Equipment Regs (PPE) and related Approved Codes of Practice (ACOP)

Learning outcome

The learner will:

LO3 understand the impact of working relationships and production techniques on workflow

Assessment criteria

The learner can:

AC3.1 describe the relationship between **work study** techniques and production planning

AC3.2 describe job roles and responsibilities in **organisations** within the woodworking sector

AC3.3 describe the importance of maintaining good relationships between trades and industries allied to the wood machining industry

AC3.4 outline legislation that relates to **working conditions and industrial relations**.

Range

Work study

Time and motion, human factors, critical analyses and new method development, principles of work measurement

Organisations

Small, medium, large

Working conditions and industrial relations

HASAW, employment legislation Contracts, terms and conditions, sickness, grievance procedures

Appendix 1 Relationships to other qualifications

Literacy, language, numeracy and ICT skills development

These qualifications can develop skills that can be used in the following qualifications:

- Functional Skills (England) – see cityandguilds.com
- Essential Skills (Northern Ireland) – see cityandguilds.com
- Essential Skills Wales – cityandguilds.com

Appendix 2 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the [Centre document library](#) on www.cityandguilds.com or click on the links below:

Centre Handbook: Quality Assurance Standards

This document is for all approved centres and provides guidance to support their delivery of our qualifications. It includes information on:

- centre quality assurance criteria and monitoring activities
- administration and assessment systems
- centre-facing support teams at City & Guilds/ILM
- centre quality assurance roles and responsibilities.

The Centre Handbook should be used to ensure compliance with the terms and conditions of the centre contract.

Centre Assessment: Quality Assurance Standards

This document sets out the minimum common quality assurance requirements for our regulated and non-regulated qualifications that feature centre-assessed components. Specific guidance will also be included in relevant qualification handbooks and/or assessment documentation.

It incorporates our expectations for centre internal quality assurance and the external quality assurance methods we use to ensure that assessment standards are met and upheld. It also details the range of sanctions that may be put in place when centres do not comply with our requirements or actions that will be taken to align centre marking/assessment to required standards. Additionally, it provides detailed guidance on the secure and valid administration of centre assessments.

Access arrangements: When and how applications need to be made to City & Guilds

provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The [Centre document library](#) also contains useful information on such things as:

- conducting examinations
- registering learners
- appeals and malpractice.

Useful contacts

Please visit the [Contact us](#) section of the City & Guilds website.

City & Guilds

For over 140 years, we have worked with people, organisations and economies to help them identify and develop the skills they need to thrive. We understand the life-changing link between skills development, social mobility, prosperity and success. Everything we do is focused on developing and delivering high-quality training, qualifications, assessments and credentials that lead to jobs and meet the changing needs of industry.

We partner with our customers to deliver work-based learning programmes that build competency to support better prospects for people, organisations and wider society. We create flexible learning pathways that support lifelong employability because we believe that people deserve the opportunity to (re)train and (re)learn again and again – gaining new skills at every stage of life, regardless of where they start.

The City & Guilds community of brands includes Gen2, ILM, Intertrain, Kineo and The Oxford Group.

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This Qualification Handbook however may contain references to historic information, such as former organisations, obsolete frameworks, codes or standards, or retired units and qualifications. This information is included for reference purposes only.

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