

SQA Practical Woodworking Yr. 10-11



PWW	SQA Practical Woodworking	National 5	Year 1-2
<ul style="list-style-type: none"> The National 5 Practical Woodworking course provides opportunities for candidates to gain a range of theoretical and practical woodworking skills relating to tools, equipment, processes and materials. They also develop skills in reading and interpreting working drawings and related documents as well as an understanding of health and safety. The course is practical, exploratory and experiential in nature. It engages candidates with technologies, allowing them to consider the impact that practical technologies have on our environment and society. Through this, they develop skills, knowledge and understanding of: <ul style="list-style-type: none"> woodworking techniques measuring and marking out timber sections and sheet materials safe working practices in workshop environments practical creativity and problem-solving skills sustainability issues in a practical woodworking context Flat-frame construction Candidates develop skills, knowledge and understanding in the use of woodworking tools and in making woodworking joints and assemblies commonly used in flat-frame joinery, involving complex features. Candidates develop their ability to read and use drawings and diagrams depicting both familiar and unfamiliar woodwork tasks. Carcase construction Candidates develop skills, knowledge and understanding in the use of woodworking tools and in making woodworking joints and assemblies commonly used in carcass construction, involving complex features. This may include working with manufactured board or with frames and panels. Candidates use working drawings or diagrams in both familiar and unfamiliar contexts that require some interpretation on their part. Machining and finishing Candidates develop skills, knowledge and understanding in using machine and power tools. Candidates also develop skills in a variety of woodworking surface preparations and finishing techniques. <p>As per the details above students will complete a series of practice projects that include all relevant use of tools, machines, techniques and processes. Year 1 will be split into generic practice pieces that will challenge students in making joints then a project will be completed using such joints to complete a product. These will be split into three projects that fall under the headings above: Flat-Frame, Carcase and machining & Finishing. Each part will challenge students to make products whilst meeting criteria from the specification and tolerances. Students will also be exposed to using and maintaining tools and machines where appropriate which again meet the requirements of the National 5 Specification.</p> <p>Delivery of the course will ultimately vary depending on ability of students and task. Group and individual guidance will be required as assessment is completed.</p>			

LESSON OUTLINES	Part	Objectives	Focus	Activity & Homework	Outcomes	H&S	Resources
	10						
	1	<ul style="list-style-type: none"> Understand structure and outcomes of the course and its requirements Inc. exam Identify important areas including assessments and tolerances of the course. 	Introduction Specification review Tolerances and assessments	<ul style="list-style-type: none"> Students will review specification and receive documentation to use whilst completing the course. All look at assessment criteria and examples of work to understand where marks are lost and gained. Section of endorsed textbook looking at theory work and supporting practical work by iterating areas of processes and tooling etc. 	<ul style="list-style-type: none"> General knowledge of course 	<ul style="list-style-type: none"> PPE Workshop Behaviour Tools Machines Posters and signage reiteration 	<ul style="list-style-type: none"> Hand tools Machines Drawing Booklets Technician support ESO where necessary
2	<ul style="list-style-type: none"> Understand the Health and safety aspects of the workshop and expectations within the shop. (This is an ongoing area of the course reiterated at reinforced at all times) 	H&S	<ul style="list-style-type: none"> Students will be aware of the general H&S of the workshop with a discussion of machines; tools; behaviour in the workshop & respect for others. 	<ul style="list-style-type: none"> Evidence in workbook and from textbook work 			

		including use of tools and behaviour in the workshop)		<ul style="list-style-type: none"> Section of endorsed textbook looking at theory work and supporting practical work by iterating areas of processes and tooling etc. 			<ul style="list-style-type: none"> Finishing media & application tools.
3	<ul style="list-style-type: none"> FLAT FRAME CONSTRUCTION (over several weeks depending on ability and speed of group. Deadlines to be added) Complete and review several practice joints for above construction. Complete project based on above construction managing time and relating build to assessments and tolerances as per SPEC. Review areas of misconception and weakness and focus on improving for next module. 	Joints and appropriate construction techniques	<ul style="list-style-type: none"> Students will complete a series of joints that will be demonstrated by a member of staff and reiterated during the task. Tips and assessments of the work will be completed each session to ensure students are completing the task correctly. Once students have completed test pieces to a satisfactory standard and have improved their technique they will move on to practical project where deadlines will be given to speed up process and meet requirements and fit in with expectations when completing final assessment (yr. 11) Section of endorsed textbook looking at theory work and supporting practical work by iterating areas of processes and tooling etc. 	<ul style="list-style-type: none"> Test Pieces Product Re: Flat Frame 			
4	<ul style="list-style-type: none"> CARCASE CONSTRUCTION (over several weeks depending on ability and speed of group. Deadlines to be added) Complete and review several practice joints for above construction. Complete project based on above construction managing time and relating build to assessments and tolerances as per SPEC. Review areas of misconception and weakness and focus on improving for next module. 	Joints and appropriate construction techniques	<ul style="list-style-type: none"> Students will complete a series of joints that will be demonstrated by a member of staff and reiterated during the task. Tips and assessments of the work will be completed each session to ensure students are completing the task correctly. Once students have completed test pieces to a satisfactory standard and have improved their technique they will move on to practical project where deadlines will be given to speed up process and meet requirements and fit in with expectations when completing final assessment (yr. 11) Section of endorsed textbook looking at theory work and supporting practical work by iterating areas of processes and tooling etc. 	<ul style="list-style-type: none"> Test Pieces Product Re: Carcase 			
5	<ul style="list-style-type: none"> MACHINING AND FINISHING (over several weeks depending on ability and speed of group. Deadlines to be added) Complete project focusing on using specialist machinery and varied finishes. Identify appropriate finishes for different products and their uses. 	Finishes and types of Use of specialist machines	<ul style="list-style-type: none"> Students will look at completing practice tasks ahead of the main project to support skill level required to complete task. This will include drilling, shaping and finishing of material. Students will use specialist tools and machines Inc.; Lathe; sanding disk and pillar drill. Practice piece for drilling and shaping and additional piece of material to look at different finishes Section of endorsed textbook looking at theory work and supporting practical work by iterating areas of processes and tooling etc. 	<ul style="list-style-type: none"> Test Pieces Product Re: Machining & Finishing 			
Part 11	Objectives	Focus	Activity & Homework	Outcomes	H&S	Resources	
1	<ul style="list-style-type: none"> Understand expectations of assessment for final project for qualification. Identify and use drawings meeting requirements of assessment and specification. Collaborate with teacher to clear misconceptions of the task Complete task to best of ability including level of H&S and independent learning 	Final Task Assessments & Tolerances Technical drawings and meanings.	<ul style="list-style-type: none"> Introduction and delivery of final project and assessed work Assessment criteria given with a breakdown of potential points that can be awarded Follow SQA restrictions when supporting students in work (limited) Students provided with correct material and sizes for final task 	<ul style="list-style-type: none"> Main product/task at best ability Logbook of processes completed during task and maintenance of tools 	As per Yr. 10 otherwise marked down in assessment process	<ul style="list-style-type: none"> Material Tools Machines Working Drawings Logbook Assessment criteria ESO 	
2	<ul style="list-style-type: none"> Reflect on misconceptualised areas of processes and tooling etc. and revise through endorsed textbook tasks. 	Revision Reiteration Exam Prep	<ul style="list-style-type: none"> Tasks for this section of time will include: <ul style="list-style-type: none"> Revision Exam practice Tasks from text book 	<ul style="list-style-type: none"> Resources completed for revision Developed knowledge of subject areas. 	<ul style="list-style-type: none"> NA Overworked Brains 	<ul style="list-style-type: none"> Textbooks Tasks Worksheets Past papers 	

<ul style="list-style-type: none"> Familiarise yourself with past papers and tasks to become more comfortable with the exam process. Revisit areas of a complex nature to remember subject areas. 		<ul style="list-style-type: none"> Q&A 			<ul style="list-style-type: none">
---	--	---	--	--	--

Assessment

See Below

ICT Skills	Skills & Knowledge	Technical Language
------------	--------------------	--------------------

NA	<p>PRIOR: Some basic woodworking skills required from prior KS3 lessons in product design and resistant materials</p> <hr/> <p>GAINED: Through this, they develop skills, knowledge and understanding of:</p> <ul style="list-style-type: none"> woodworking techniques measuring and marking out timber sections and sheet materials safe working practices in workshop environments practical creativity and problem-solving skills sustainability issues in a practical woodworking context 	Terminology used in specification and working drawings including specialist names of tooling and processes. (See Below)
----	---	---

Differentiation (All, Most & Some)	Health & Safety	Content
------------------------------------	-----------------	---------

<p>All should have completed a product and followed instructions from material provided.</p> <p>Most should have completed a product at a adequate level meeting some of the requirements of the examining body.</p> <p>Some should have completed a product at a good level meeting the majority of the requirements of the examining body.</p>	<ul style="list-style-type: none"> PPE Workshop Behaviour Tools Machines Posters and signage <p style="text-align: center;">reiteration</p>	See pages 6-10 on National 5 Practical Woodwork Specification (See Below)
---	---	---

Assessment Examples

D	B	A
---	---	---

New course	New course	New course
------------	------------	------------

Safe Working Procedures & Independence of Work

Safe working procedures

Safe working procedures focuses on candidates' behaviour within a workshop, and their ability to adhere to general and centre-specific health and safety procedures and rules.

Assessors must note any interventions or reminders during the practical activity, and apply marks as outlined in the marking instructions.

These interventions or reminders could include:

- stopping unsafe use of a machine/power tool
- preventing unsafe use of hand tools
- unacceptable behaviour
- any breach of health and safety regulations
- any breach of the centre's procedures or rules

Candidate has adhered to safe working procedures, without any need for reminders or interventions	5
Candidate has adhered to safe working procedures, with one reminder or intervention	4
Candidate has adhered to safe working procedures, with two reminders or interventions	3
Candidate has adhered to safe working procedures, with three or four reminders or interventions	2
Candidate has adhered to safe working procedures, with regular reminders or interventions	1
Candidate has adhered to safe working procedures, with constant reminders or interventions	0

Independence of work

For guidance on what is considered additional assistance, assessors must refer to the 'Guidance on conditions of assessment for coursework' document.

In general, additional assistance is where assessors have demonstrated or described a procedure.

All work has been carried out independently, with no additional assistance required	3
Work has been carried out independently, with one or two instances of assistance required	2
Work has been carried out, with regular assistance required	1
Work has been carried out, with constant assistance required	0

Measuring & Marking and Cutting of Joints

Measuring and marking	
When making assessment judgements, assessors must consider how the component parts of construction were measured and marked.	
Accurate use of measuring and marking tools has ensured that all instances of marking for construction are within tolerance	4
Accurate use of measuring and marking tools has ensured that most instances of marking for construction are within tolerance	3
Accurate use of measuring and marking tools has ensured that some instances of marking for construction are within tolerance	2
Accurate use of measuring and marking tools has ensured that few instances of marking for construction are within tolerance	1
There is no evidence of accurate use of measuring and marking tools for construction	0

Cutting of joints	
When making assessment judgements, assessors must consider how the joints were cut.	
Accurate use of cutting tools has ensured that all cutting is within tolerance	5
Accurate use of cutting tools has ensured that almost all cutting is within tolerance, with the exception of one instance	4
Accurate use of cutting tools has ensured that most cutting is within tolerance	3
Accurate use of cutting tools has ensured that some cutting is within tolerance	2
Accurate use of cutting tools has ensured that few instances of cutting are within tolerance	1
There is no evidence of accurate use of cutting tools	0

Machining & Turnery

Dimension Tolerances	
<p>When making assessment judgements, assessors must consider the dimensions used for the assessment. These are specified in the working drawings contained within the practical activity assessment task.</p> <p>Any personalised work by candidates should be accompanied by a working drawing/template, but will not be assessed. The specified dimensions in the practical activity assessment task cannot be altered.</p>	
All linear and radial dimensions are within tolerance	4
Most linear and radial dimensions are within tolerance	3
Some linear and radial dimensions are within tolerance	2
Few linear and radial dimensions are within tolerance	1
There is no evidence of linear or radial dimensions being within tolerance	0

Quality of Turnery	
<p>When making assessment judgements, assessors must relate to the standard expected at National 5 level:</p> <ul style="list-style-type: none"> • lines of turnery are smooth (no peaks and troughs) • turnery is symmetrical about centre • a good finish from cutting tools has been achieved • smooth transitions, where appropriate • good crisp shoulders, where required 	
All aspects of turnery meet the standard	4
Most aspects of turnery meet the standard	3
Some aspects of turnery meet the standard	2
Few aspects of turnery meet the standard	1
There is no evidence of turnery meeting the standard	0

Finishing

Preparation	
<p>When making assessment judgements, assessors must award a mark appropriate to the standard expected at National 5 level:</p> <ul style="list-style-type: none"> • all pencil marks have been removed • no scratches from using abrasives • no evidence of glue marks • all marks from processing have been removed 	
All component parts prepared for finish meet the standard	4
Most component parts prepared for finish meet the standard	3
Some component parts prepared for finish meet the standard	2
Few component parts prepared for finish meet the standard	1
There is no evidence of preparation for finish	0

Application of Finish	
<p>When making assessment judgements, assessors must consider the standard expected at National 5 level. Care should be taken when choosing an appropriate finish to avoid blemishes.</p> <p>Blemishes are:</p> <ul style="list-style-type: none"> • runs that are visible • brush marks that can be seen • brush hairs that have not been removed • evidence of raised grain • an accumulation of wax • uneven staining • scratches from abrasives between coats 	
A finish has been applied with no blemishes	3
A finish has been applied with some minor blemishes	2
A finish has been applied with major blemishes	1
No finish has been applied	0

Overall Assembly

Quality of Assembly	
<p>When making assessment judgements, assessors must consider the assembly of component parts in conjunction with the overall assembly.</p> <p>To achieve a mark between 3 and 5, the product must be fully assembled. If not, then a mark of 0 to 3 should be awarded based on the quality of the partially assembled product.</p>	
All parts of the product have been fully assembled , are square and without any twists	5
All parts of the product have been fully assembled , although one corner of the flat-frame or the carcass may be slightly off-square , or there may be one slight twist	4
All parts of the product have been fully assembled , although either the flat-frame or the carcass is off-square and there may be evidence of slight twisting	3
Either the flat-frame or the carcass has been assembled , is square and free of twists	2
Although partially or fully assembled , both the flat-frame and the carcass are off-square and may show twists	1
There is no evidence of assembly	0

Assembly Tolerances	
<p>When making assessment judgements, assessors must refer to the overall sizes given in the practical activity assessment task.</p>	
All dimensions are within the specified tolerance for size and position	5
All dimensions, with the exception of one , are within the specified tolerance for size and position	4
Most dimensions are within the specified tolerance for size and position	3
Some dimensions are within the specified tolerance for size and position	2
Few dimensions are within the specified tolerance for size and position	1
There is no evidence of assembly	0

Skills, knowledge and understanding for the course assessment

The following provides details of skills, knowledge and understanding sampled in the course assessment:

Practical activity		Question paper	
Skills	Candidates are required to demonstrate the ability to:	Knowledge and Understanding	Candidates are required to demonstrate a knowledge and understanding of:
Measuring and marking out	Use the measuring and marking out tools listed below: <ul style="list-style-type: none"> + steel rule + tape measure + try-square + marking gauge + templates + marking knife + mortise gauge + cutting gauge + sliding bevel + dovetail template + outside callipers <p>With evidence of ratio dimensioning (ie 1/3 thickness, 1/2 thickness).</p>	Measuring and marking out	The use of the tools and equipment listed below: <ul style="list-style-type: none"> + steel rule + tape measure + try-square + marking gauge + templates + marking knife + mortise gauge + cutting gauge + sliding bevel + dovetail template + outside callipers + units of measurement + ratio dimensioning (ie 1/3 thickness, 1/2 thickness)
Reading and Interpreting drawings and documents	Read and extract relevant information from: <ul style="list-style-type: none"> + working drawings, pictorial drawings, diagrams, cutting lists 	Reading and Interpreting drawings and documents	<ul style="list-style-type: none"> + working drawings, pictorial drawings, diagrams, cutting lists + orthographic projection + scale + basic drawing conventions: line types outlines, centre lines, hidden detail and dimension lines + reading and extracting information from working drawings: linear, radial, angular (45°) and diametric dimensions
Materials	Work safely with natural and manmade materials.	Materials	Properties of woodworking materials listed below: <ul style="list-style-type: none"> + softwoods: white and red pine, cedar and larch + hardwoods: ash, oak, beech, mahogany and meranti (Philippine mahogany) + manufactured boards and veneered manufactured boards: chipboard, plywood, hardboard, MDF and blockboard + dowel rod
Bench work	Safely use tools listed below: <ul style="list-style-type: none"> + bench vice + saws + chisels + mallet + hammers + pliers 	Bench work	The safe use of the bench tools and their component parts listed below: <ul style="list-style-type: none"> + bench vice + saws: tenon/back, coping, rip, cross-cut and panel + chisels: bevel edged, mortise and firmer + parts of chisels: tang, ferrule, leather washer and handle + mallet
	<ul style="list-style-type: none"> + planes + spoke shave + hand drills and braces + screwdrivers + sawing board/bench hook + hand router + bradawl + nail punch 		<ul style="list-style-type: none"> + hammers: cross-pein and claw + pliers + planes: jack, smoothing, plough, bull-nose, block, rebate and combination + main parts of plane: cap iron, cutting iron, adjusting lever and adjusting nut, depth stops and fences + spoke shave + hand drills and braces + screwdrivers: straight and cross-head + sawing board/bench hook + hand router + bradawl + nail punch
Cramping	Accurately and safely use cramping devices.	Cramping	The safe use of cramping devices listed below: <ul style="list-style-type: none"> + cramps: sash cramp, G-cramp, mitre cramp, band cramp + string and block <p>The purpose of dry cramping.</p>

Flat-frame jointing techniques	<p>Safely manufacture flat-frame joints listed below:</p> <ul style="list-style-type: none"> + corner: butt, mitre, dowel, halving, bridle, haunched mortise and tenon + T joints: butt, dowel, halving, bridle, stub and through mortise and tenon + cross halving + dovetail halving 	Flat-frame jointing techniques	<p>The construction and use of the flat-frame joints listed below:</p> <ul style="list-style-type: none"> + corner: butt, mitre, dowel, halving, bridle, haunched mortise and tenon + T joints: butt, dowel, halving, bridle, stub and through mortise and tenon + cross halving + dovetail halving <p>Selecting appropriate flat-frame joint types for given scenarios.</p>
Carcase jointing techniques	<p>Safely manufacture carcase construction joints listed below:</p> <ul style="list-style-type: none"> + butt + corner rebate + through housing + stopped housing + dowel 	Carcase construction	<p>Construction and use of the carcase joints listed below:</p> <ul style="list-style-type: none"> + butt + corner rebate + through housing + stopped housing + dowel <p>Selecting appropriate carcase joint types for given scenarios.</p>

Mechanical fixings and adhesives	<p>Safely use correct mechanical fixings:</p> <ul style="list-style-type: none"> + nails + proprietary flat-frame fixings + proprietary carcase construction fixings + knock down fixings <p>Safely use wood adhesives in a workshop environment.</p>	Mechanical fixings and adhesives	<p>Ironmongery listed below:</p> <ul style="list-style-type: none"> + nails: round, oval, brads, panel pins + screws: round/dome head, countersink, slotted, cross-head + angle brackets + corner blocks + knock down fixings <p>Uses of wood adhesives and glues: interior and exterior.</p>
Use and maintenance of machine and power tools	<p>Safely use the machines and power tools listed below:</p> <p>Machines:</p> <ul style="list-style-type: none"> + woodturning lathe + belt sander + disc sander + pedestal/pillar drill + mortise machine <p>Power tools:</p> <ul style="list-style-type: none"> + drills + sanders + cordless screwdrivers + jig saw 	Safe use of machines and power tools	<p>Safe working practice for operating the machines, tools and processes listed below and, where indicated, the component parts:</p> <p>Machine tools:</p> <ul style="list-style-type: none"> + woodturning lathe: face plate and between centre turning + lathe tools: forked/butterfly centre, dead centre, revolving centre, gouge, scraper, parting chisel and skew chisel + parts of the lathe: bed, tailstock, tool rest, headstock + preparing a blank for turning + belt sander + disc sander + pedestal/pillar drill + drill bits: twist, countersink rose, flat and Forstner + mortise machine: setting depth, checking cutting chisel/drill, positioning and securing work piece

			<p>Power tools:</p> <ul style="list-style-type: none"> + drills: corded and cordless + sanders: orbital and belt + cordless screwdrivers + jig saw <p>Tool care and maintenance:</p> <ul style="list-style-type: none"> + reporting faults + inspecting cables, tool holding and guards + dust extraction
Surface preparation and finishing	<p>Carry out preparation to natural wood and manmade boards before applying a finish.</p> <p>Apply finishes to natural wood and manmade boards.</p>	Surface preparation and finishing	<p>The wood preparation techniques listed below:</p> <ul style="list-style-type: none"> + use of planes + sanding + abrasive types: glass and garnet + abrasive grades: fine, medium and coarse + scraping + stopping + filling <p>Techniques required to prepare for, and apply, the finishes listed below:</p> <ul style="list-style-type: none"> + varnish + stain + wax + oil: Danish, linseed and vegetable

Care and maintenance of tools and machinery, and safe working practices	Complete a log book detailing evidence of good and safe working practices covering the following: <ul style="list-style-type: none"> + care and maintenance of tools and equipment + reporting faults and fault reporting systems + general condition before, during and after use + position and condition of guards + position and security of cutting tools on machine tools + use of personal protective equipment + setting a plane + honing a chisel + honing a plane iron 	Safe working practices	Good practices and safe systems for general workshop and individual activities when manufacturing a wood product. Personal protective equipment: apron, gloves, safety goggles, safety specs, visors, dust protection.
Sustainability and recycling	Understand and follow workshop recycling practices and processes.	Sustainability and recycling	Best practice in selecting materials that are appropriate for a specific use. Understand and follow workshop recycling practices and processes.