

Unit 211: Set up and operate a circular saw

Sample scheme of work

This sample scheme of work covers both classroom and workshop based learning for Unit 211. It is based on 3 hours per session for 12 sessions. It is an example only of a possible scheme of work and is based on theory and practical within an FE centre, but can be amended to suit all learning facilities with the necessary adjustments to meet individual learners' needs.

Unit 211 is designed as a stand-alone unit and should be used in conjunction with the standards set for the qualification to ensure full coverage of the learning requirements. However, with some modification it could be combined with Unit 214: Manufacture bench joinery products.

You can use the sample scheme of work as it is, adjust it or extract content to create a scheme of work to suit your delivery needs. It can also be adjusted by adding theory and practical workshops to support learners who have/need additional learning time.

Reference is made within the scheme of work to **worksheets, handouts, sample questions and PowerPoint presentations** (in **black bold**) that are available on SmartScreen.co.uk for tutors to use with learners. Any other resources listed are not provided on SmartScreen but provide guidance for the tutor as to others they may produce. Delivery timings are given; however, these can be amended to suit the group. The content of presentations, discussions, explanations etc are left to the professionalism of the course tutor. **Also provided on SmartScreen.co.uk for Unit 211 is a revision worksheet that may be used by tutors to prepare learners for assessment.**

Centres should also incorporate the following themes, where appropriate, as strands running through each of the sections within the qualification. Although they are not specifically referred to in the section content section, City & Guilds regards these as essential in the teaching of the qualification:

- health and safety considerations, in particular the need to impress upon learners the fact that they must preserve the health and safety of others as well as themselves
- Functional Skills (mathematics, English and ICT)
- extension tasks and differentiation, inclusion, entitlement and equality issues
- spiritual, moral, social and cultural issues
- environmental education and related European issues
- Every Child Matters
- personal learning and thinking skills (PLTS)
- Use of information learning technology (ILT).
- Learners to prepare a few brief notes in small group discussions on the possible implications of not following health and safety regulations.

Unit 211: Set up and operate a circular saw

Sample scheme of work

Teacher:

Course/Qualification Level 2 Bench joinery 6706-211		Group	Duration: From: To:	
No of sessions	12	Delivery hours	36	Venue Classroom and workshop

Aims of course:

- The aim of this unit is to provide the learner with the knowledge and skills to use a circular saw to cut wood, wood products and non-ferrous metals.
- The knowledge acquired by the learner will enable them to understand how the relevant law and good practice relating to circular saw usage is important.
- The skills developed by the learner include the ability to maintain, use and change tooling on fixed and transportable circular saws.

To enable learners to:

1. know the principles of using circular saws safely
2. know how to change circular saw blades
3. be able to change circular saw blades
4. know timber, timber products and processes
5. know how to cut timber and manufactured boards
6. be able to cut timber and manufactured boards.

Unit 211 Scheme of work

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
1 3 hours	(Learning outcome 1) State current legislation applicable to circular saws • Provision and Use of Work Equipment Regulations (PUWER) • approved code of practice (ACoP) • Health and Safety at work act • personal protective equipment at work (PPE) • chemicals or substances hazardous to Health (COSHH) • electricity at work act, abrasive wheels regulations • vibration at work regulations • control of noise at work regulations • environmental regulations Identify components of a circular saw • Guards • extraction points • fences • riving knife • bed • blade • information plate • mouth piece • on/off button • adjusting mechanisms State potential faults in relation to circular saws	Activities: • Using power point presentation learners will be guided through regulations governing circular saws. • Ask learners to revise the contents of the legislation affecting the use of circular saws. • Learners to prepare a few brief notes in small group discussions on the possible safety requirements needed for working with circular saw and preparing the working area and then share these ideas in a whole group discussion. • Learners to identify reasons for maintenance and fault finding. • Discuss importance of maintenance logs. Resources: • Lesson plan 1 • Power point presentation 1 • Activity 1 • Activity 7 • Activity 9 • Activity 12 • Activity 13 • Activity 14 • Handout 1 • Worksheet 1 • Worksheet 2 Noise at work video http://www.hse.gov.uk/noise/video/hearingvideo.htm Copy of ACoP for Provision and Use of Work Equipment Regulations 1998 as applied to woodworking machinery http://www.hse.gov.uk/pubns/priced/l114.pdf Video on using a circular rip saw	Observation Group working Question and answer Worksheets 1 and 2 Drag and drop activity 1 Wordsearch Activity 7 Wordsearch Activity 9 Crossword Activity 12 True or false Activity 13 Word bank Activity 14 Handout 1 Worksheet 1 Worksheet 2

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	• missing or damaged guards • faulty or incorrectly fitted tooling • damage to equipment • riving knife (thickness, distance, height) Describe the procedure to follow on identification of faults • missing or damaged guards • faulty or incorrectly fitted tooling • damage to equipment • riving knife (thickness, distance, height)	http://www.hse.gov.uk/woodworking/ripsaw.htm Video on using a crosscut saw http://www.hse.gov.uk/woodworking/crosscut.htm	
2 3 hours	(Learning outcome 1) Describe types of dust extraction for circular saws • fixed • portable State the importance of dust extraction on circular saws Identify sawing safety aids used in conjunction with circular saws • push sticks • jigs (saddle, wedge) State safety features of a circular saw • crown/top saw guard • riving knife	Activities: • Using power point presentation learners will be guided through COSHH regulations governing circular saws. • Discuss advantages and disadvantages involved with types of dust collection systems. • Using power point presentation showing requirements for safety aids used with sawing machines. • Learners to prepare a few brief notes in small group discussions on the possible safety implications of not using safety aids and features while working the circular saw and then share these ideas in a whole group discussion. Resources: • Lesson plan 2 • PowerPoint presentation 1 • PowerPoint presentation 2 • Worksheet 1 • Worksheet 3	Observation Group working Question and answer Worksheet 1 Worksheet 3 Drag and drop activity 1 Hotspot activity 3 True or false activity 5 Wordsearch activity 7 Crossword activity 11

Unit 211 Scheme of work

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	• braking systems • isolation switch • out feed table • State safety features of a circular saw	• Activity 1 • Activity 3 • Activity 5 • Activity 7 • Activity 11 • Activity 16 • Handout 1 • Video on wood dust http://www.hse.gov.uk/woodworking/videos/wood-dust-exposure.mp4 • Example safe working practice in controlling wood dust http://www.hse.gov.uk/pubns/wis23.pdf	Word bank activity 16 Handout 1
3 3 hours	(Learning outcome 2) State the sequence of changing circular saw blades • consult the risk assessment • isolate – remove guarding – riving knife – saw blade • clean down • replace saw blade – riving knife – guarding • undergo pre-start checks State the importance of the minimum saw blade diameter in relation to peripheral speed State the importance of fitting correct	Activities: • Using power point presentation learners will be guided through risk assessment for a circular saw. • Set by step guide to changing a saw blade. • Learners to prepare a few brief notes in small group discussions on the correct safety requirements needed when changing a circular saw and then share these ideas in a whole group discussion. Resources: • Lesson plan 3 • PowerPoint presentation 3 • Worksheet 4 • Activity 6 • Example of risk assessment on a hand fed circular saw http://www.hse.gov.uk/woodworking/training/handfedcircularsaw.pdf • Link for safe working practices on a circular rip saw http://www.hse.gov.uk/pubns/wis16.pdf	Observation Group working Question and answer Worksheet 4 Sequence activity 6

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	circular saw blades	- Link for safe working practices on a crosscut saw http://www.hse.gov.uk/pubns/wis36.pdf - Audio on five steps to risk assessment http://www.hse.gov.uk/pubns/talkingleaflets/indg163.mp3	
4 3 hours	(Learning outcome 2) Identify features of a circular saw blade - root - top - face - back - point - Heel - positive, negative and neutral hook - gullet - tip - kerf Describe effects of timber and sheet material on circular saw blades - effects abrasion - resin build up - overheating - material - softwoods - hardwoods - manufactured boards - plywood - chipboard - MDF Describe the use of lubricants on circular	Activities: - using power point presentation learns to be guided through parts of rip saw blade, crosscut saw blade, teeth material and it's suitability for cutting different types of material - learners to identify different type of cutting material and it's uses - Learners to prepare a few brief notes in small group discussions on the possible impact of using incorrect types of tooth design and material when working with different types of material. Learners to then share these ideas in a whole group discussion. Resources: - Lesson plan 4 - PowerPoint presentation 4 - Worksheet 5 - Activity 2 - Activity 4 - Activity 8 - Activity 10 - Handout 2	Observation Group working Question and answer Worksheet 5 Drag and drop activity 2 Hotspot activity 4 Wordsearch activity 8 Crossword activity 10 Handout 2

Unit 211 Scheme of work

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	saw blades		
5–6 6 hours	(Learning outcome 3) Carry out risk assessment for changing circular saw blades Follow the sequence for changing circular saw blades using manufacturers' tools in accordance with their instructions and current legislation - consult the risk assessment - isolate - remove guarding – riving knife – saw blade - clean down - replace saw blade – riving knife – guarding - undergo pre-start checklist - tools: – spanners – allen keys – mallet Select appropriate types of saw blades for the operations being carried out - rip saw - crosscut - combination Inspect saw blades for damage and	Activities: - Using power point presentation learners will produce a risk assessment for a circular saw. - Learners to prepare a few brief notes on the contents of a risk assessment for a circular saw in a small group discussion and then share these ideas in a whole group discussion. - Remove and attach suitable circular saws to rip saw machines and crosscut saw machines. - Learners to record the steps they take. Resources: PowerPoint presentation 5 Worksheet 6 Activity 15 - Selection of saw blades - Work shop machines - Tools and equipment to change circular saw blades	Observation Group working Question and answer Worksheet 6 Crossword activity 15

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	potential hazards • missing or damaged teeth • warping Follow current environmental and relevant health and safety legislation relating to changing circular saw blades • Provision and Use of Work Equipment Regulations (PUWER) • approved code of practice (ACoP) • Health and Safety at work act • personal protective equipment at work (PPE) • chemicals or substances hazardous to Health (COSHH) • electricity at work act • abrasive wheels regulations • vibration at work regulations • control of noise at work regulations • environmental regulations		
7 3 hours	(Learning outcome 4) Identify different types of timber • Softwoods – European red wood – white wood – Douglas fir • Hardwoods – Oak – Mahogany – Beech	Activities: • Using power point presentation learners will be guided through types of timber, timber conversion and timber defects. • Learners to prepare a few brief notes in small group discussion on the importance of correctly seasoned timber then share these ideas in a whole group discussion. Resources: • Activity 17 • Activity 18 • Activity 19	Observation Group working Question and answer Hotspot activity 17 True or false activity 18 Wordsearch activity 19

Unit 211 Scheme of work

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	– Ash Identify methods of timber conversion • quarter sawn • through and through • tangential • boxed heart Describe defects found in timber • Natural – sloping grain – knots – shakes – upset – waney edge – resin pockets – foreign bodies – decay – pith – blue stain – insect infestation • seasoning – cupping – winding – twist – case hardening – bowing – springing – collapse State methods of drying timber • Air drying	• Activity 20 • Handout 3	Word bank activity 20 Handout 3

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	• kiln drying • measuring moisture content Identify types of manufactured boards • manufactured boards • medium density fibre board (MDF) • plywood • orientated strand board (OSB) • chipboard • hardboard		
8 3 hours	(Learning outcome 5) Describe the type of information recorded on a cutting list • Information description of the item • Quantity • Material • Length • Width – Sawn – planed • thickness – sawn – planed • remarks • contract details State the requirements for setting guards, saw blades and fences according to • current legislation • approved code of practice	Activities: • Using power point presentation learners will be guided through requirements of cutting lists. • Learners to prepare a few brief notes in small group discussions on the consequences of not using cutting lists when working with circular saws and then share these ideas in a whole group discussion. • Review previous sessions in a Q&A team session on all aspects of circular saws. Resources: • Handout 4	Observation Group working Question and answer Handout 4

Unit 211 Scheme of work

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	State the requirements for adjusting the circular saw according to • current legislation • approved code of practice State methods of supporting materials during cutting • use of – out feed table – rollers – additional manual support		
9–12 12 hours	(Learning outcome 6) Carry out risk assessment for cutting timber and manufactured boards Check circular saws for faults • missing or damaged guards • faulty or incorrectly fitted tooling • damage to equipment • riving knife – thickness – distance Select material for cutting • Softwood • manufactured board Set guards according to current legislation • Provision and Use of Work Equipment	Activities: • Using risk assessment produced in session 5 set up and use circular sawing machines to cut different types of material. • Each learner taking it in turn to set up and use the machines to cut different types of material in compliance with all safe working practices. • Learners to prepare a few brief notes on experiences from cutting different types of timber on both crosscut saws and rip saws and then share these ideas in a whole group discussion. Resources: • Lesson plan 5 • Work shop tools and equipment • Rip saw • Crosscut saw	Observation Safe use of wood working machines Finished product Group working Question and answer

Unit 211 Scheme of work

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	Regulations (PUWER) • approved code of practice (ACoP) • Health and Safety at work act • control of noise at work regulations • environmental regulations Set fences and adjust saw blades according to given specifications • working drawings • cutting lists • given instructions Identify defects and cut material appropriately • Natural – sloping grain – knots – shakes – upset – waney edge – resin pockets – foreign bodies – decay – pith – blue stain – insect infestation • seasoning – cupping – winding – twist – case hardening – bowing		

Unit 211 Scheme of work

Session	Objectives/learning outcomes The learner will:	Activities and resources	Assessment
	– springing – collapse Cut material according to given specifications • working drawings • cutting lists • given instructions Use appropriate sawing safety aids to specifications • push sticks • jigs – saddle – wedge Follow current environmental and relevant health and safety legislation relating to cutting timber and manufactured boards • Provision and Use of Work Equipment Regulations (PUWER) • approved code of practice (ACoP) • Health and Safety at work act • personal protective equipment at work (PPE) • chemicals or substances hazardous to Health (COSHH) • electricity at work act • control of noise at work regulations • environmental regulations • manual handling		

