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| City & Guilds Level 2 Certificate of Competence in Chainsaw Maintenance and Cross-Cutting (0039-20) |

**March 2025 Version 1.4**

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| **Version and date** | **Change detail** | **Section** |
| 1.0 | First version |  |
| 1.1 August 2021 | Assessor instructions updated  | Introduction  |
| 1.2 October 2021 | AO name added to qualification title Typos corrected | Throughout |
| 1.3 August 2022 | Formatting changesUpdated logoUpdated ‘Sources of general information’ | ThroughoutFront coverAppendix 1 |
| 1.4 March 2025 | Formatting changes | Throughout |

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Introduction

This assessment relates to the unit in the Qualification handbook. The assessment can be achieved at pass only. If any task is not yet met the candidate is unsuccessful.

This assessment is for unit 201 Chainsaw maintenance and cross-cutting covering the following learning outcomes:

1. Carry out chainsaw maintenance

2. Carry out cross-cutting with a chainsaw

General guidance on the requirements for assessment can be found in the Assessor Guidance document available on the City & Guilds web site [www.nptc.org.uk](http://www.nptc.org.uk)

The assessor must complete the Practical Table mark sheet for each candidate which should be kept by the assessor for a minimum period of twelve months.

**Record of assessment (ROA)**

A prepopulated record of assessment must be completed by the assessor following an assessment. The number of outcomes is listed above, these must be ticked into the relevant met or not met sections of the ROA.

**ARAS Forms**

An Assessment Result Advice Slip (ARAS form) must be completed by the assessor following an assessment. The ARAS is not a certificate but, based on the evidence of the candidate’s performance, is a recommendation to City & Guilds that the candidate is either met or not met the assessment criteria. All feedback is to be recorded by the assessor on the feedback section of the ARAS form.

**Assessment Time**

The expected assessment time for this qualification is 2.5 – 3 hours.

**Site/workshop requirements:**

Sufficient workspace to accommodate more than one candidate

Work bench with facility to hold a chainsaw securely (vice)

Hand cleaning facilities

Outside area for fuelling and starting the chainsaw

 sufficient timber of suitable length and weight, to exert tension and compression (200mm to 380mm diameter)

**Equipment/Machinery:**

Petrol driven chainsaw (maximum guide bar 15 inch)

Additional chainsaw components to aid assessment

Suitable and sufficient range of chainsaw maintenance tools

Relevant chainsaw operator’s manual

Waste disposal facilities

First aid kit

**Consumables:**

Fuel and chainsaw oil

Cleaning materials

This is not an open book assessment however additional technical information may be sought from the relevant manufacturer’s operator manuals or any other appropriate training or safety publication.

**Practical observation descriptor table**

### 201- Chainsaw maintenance and cross-cutting

|  |  |
| --- | --- |
| **Activity number and description from check list** | **Assessment criteria**  |
| **1** | Explain the risk assessment process | The risk assessment process may contain the following five steps:* identify the hazards
* decide who might be harmed and how
* evaluate the risks and decide on precautions
* record the findings and implement them
* review and update the assessment as necessary
 |
| **2** | Identify the hazards, risks and controls associated with the site, task and machine  | Identify hazards, risks and controls relevant to the site task and machine  |
| **3** | Outline emergency planning relevant to the working area | Emergency planning relevant to a work site may include:* site location
* grid reference
* what three words
* designated meeting place
* nearest access point
* street name/district
* type of access (public road/light vehicles, four-wheel drive)
* suitable helicopter landing area
* phone number of nearest doctors
* location of nearest accident and emergency hospital and phone number
* works manager contact details
* your own contact number/mobile number
* other
 |
| **4** | Outline responsibilities as an operator under the: Health and safety at work act Provision and use of work equipment regulations (PUWER) | Outline key points from the legislation and industry good practice listed below:Health and Safety at Work Act (HASWA):* follow training received
* take reasonable care of their own and other people’s safety
* other

Provision and Use of Work Equipment Regulations (PUWER):* equipment is maintained
* equipment is fit for purpose
* other
 |
| **5** | State providers of industry good practice | Providers of industry good practice may be:* Forest Industry Safety Accord (FISA)
* Regional forestry bodies
* Arboricultural Forestry Advisory Group (AFAG)
* Arboricultural Association (AA)
* Other
 |
| **6** | Explain why it is important to maintain chainsaws to manufacturers recommendations | The importance of maintaining chainsaws to manufacturers recommendations may include:* machine is safe to use
* reduces machinery repair downtime
* other
 |
| **7** | Identify and explain the function of all the key safety features | Explain the function of all chainsaw safety features:Guide bar cover:* protects and covers the bar and chain

Chain with low kick back characteristics:* reduces kickback

Exhaust:* noise reduction and reduces emissions

Combined chain brake and front hand guard:* stops the chain rotating and protects the hand

Chain catcher:* catches a derailed chain

Anti-vibration mounts:* reduces vibration

On/off switch:* stops engine

Safety decals-hand/eye/ear defender symbols: * provides mandatory information

Throttle trigger lockout:* stops accidental throttle operation

Rear chain breakage guard:* protects the rear hand
 |
| **8** | Select appropriate maintenance tools for the power unit and cutting systems in accordance with operator’s handbook | Appropriate tools for the maintenance of both the chainsaw power unit and guidebar/chain are selected |

|  |  |  |
| --- | --- | --- |
| **9** | State hazards associated with battery powered equipment | Hazards associated with battery powered equipment may be:* incorrect compatibility of battery/machine
* machine being live when the battery is in place
* machine may not have an on/off switch
* battery misalignment
* battery storage
* battery disposal
* battery dislodging and falling from the machine
* electric shock
* short circuiting and combustion when charging
* malfunction due to water contamination
* lack of power
* charge time and charging requirements
* other
 |
| **10** | Explain battery power unit maintenance and checks | Battery power unit maintenance and checks should include:* battery guide tracks are inspected and cleaned
* battery is not damaged, cracked or deformed
* battery has sufficient charge
* machine air intake and cooling system cleaned and inspected for damage
* keypad is inspected for damage and cleaned (if applicable)
* battery compartment is inspected for damage
* other
 |
| **11** | State the benefits associated with the use of battery powered machines | Benefits associated with the use of battery powered machines may include:* reduced weight
* reduced vibration
* reduced noise
* no emissions
* clearer communication with others on site
* less maintenance requirements
* more accurate operation due to no engine torque
* no need for the transportation of fuel
* no risk of fuel spillages
* other
 |

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| --- | --- | --- |
| **12** | Explain the function and maintenance requirements of individual componentsMaintain power unit in accordance with operator’s handbook using appropriate tools | Spark plug:* provides ignition, maintenance may include inspection, cleaning and checking of electrode gap

Maintenance:* engine cover and spark plug removed
* plug cleaned or replaced as necessary
* wear/damage assessed
* gap size checked and set if necessary

Air filter:* prevents debris entering the carburettor and helps maintain the correct air/fuel ratio, maintenance may include inspection and thorough cleaning

Maintenance:* excess debris removed from around filter prior to removal
* filter removed, protecting carburettor
* filter inspected maintained and cleaned appropriate to condition
* filter refitted correctly

Chain brake:* stops the chain, maintenance may include inspection of the chain brake system, cleaning or replacement

Maintenance:* clear debris from chain brake mechanism /clutch housing
* chain brake band checked for wear

Cooling system:* Prevents the engine from overheating, maintenance may include inspection and cleaning

Maintenance:* remove covers where appropriate and remove excess debris from fins and cylinder

Exhaust system:* reduces noise and emissions, maintenance may include inspection, security of nuts/bolts, spark arrestor and removal of residue

Maintenance:* check all nuts and bolts for security
* remove excess residue from the silencer
* check condition and security of spark arrestor if applicable

Clutch/drive system:* provides drive to the chain, maintenance may include inspection, cleaning and removal of the clutch

Maintenance for inboard clutch:* remove retaining clip
* dismantle sprocket assembly
* sprocket checked for wear and condition
* clean crankshaft stub and grease needle cage where appropriate
* re-assemble

Maintenance for outboard clutch:* if appropriate piston locked as per manufactures guidance
* unscrew clutch weights according to manufacturer’s guidance
* clean crankshaft stub and grease needle cage where appropriate
* re-assemble

Sprocket:* drives/pushes the chain along the guidebar, maintenance may include inspection and replacement due to wear exceeding manufacturers tolerances

Maintenance:* sprocket checked for wear and condition

Starter mechanism:* engages the flywheel, maintenance may include cleaning, inspection

Maintenance:* starter cover removed and air ways cleared
* cord and coil spring tension released
* cord inspected for wear
* cord and coil spring re-tensioned
* re-coil checked to ensure spring tension is correctly applied
* pull toggle checked for security

Greasing/lubrication: * may help prevent excessive wear of components

Maintenance:* greasing of component parts as appropriate

Fuel filter:* prevent debris entering engine components, maintenance may include cleaning as appropriate or replacement

Maintenance:* fuel cap removed
* filter located and removed where applicable from tank using appropriate tool
* replacement as appropriate

Oil filter:* prevent debris entering guide bar, maintenance may include cleaning as appropriate or replacement

Maintenance:* oil cap removed
* filter located and removed where applicable from tank using appropriate tool
* condition of filter determined
* cleaning procedures using non-flammable detergents followed by rinsing and drying or replacement as appropriate
 |
| **13** | Explain the function and maintenance requirements of the guidebarMaintain the guidebar in accordance with operator’s handbook using appropriate tools | Guidebar:* holds and carries the chain to enable the cutting of timber

Maintenance: * identification of uneven and damaged rails and maintain as appropriate
* checking the straightness of bar
* checking the bar groove depth
* identification of any overheating, cracking and burring
* removal of burrs
* clearing the bar groove and oil holes
* inspecting the sprocket nose for security and condition
* greasing the bar nose sprocket if applicable
* turning the bar following maintenance to reduce wear
 |
| **14** | Describe the problems encountered when chain and guidebar are worn, damaged or poorly maintained | Problems that may be encountered when a chain and guidebar are worn, damaged or poorly maintained may include:* chainsaw does not cut in a straight line
* over-heating of the guidebar
* poor lubrication of the chain
* increased chain, bar and sprocket wear
* other
 |
| **15** | State the information required to replace the chainsaw chain | The information required to replace the chainsaw chain may include:* pitch
* gauge
* length of guidebar
* number of drive links
* cutter type
 |
| **16** | Identify different cutter types and their application | Cutter types may include:* chisel chain
* semi-chisel chain
* other
* application may depend on experience of the operator, timber type and personal preference
 |
| **17** | Explain how to select the correct filing information for the chain and why this is necessary | Select the correct file size and identify the required sharpening angles through use of chain charts, manufactures information, chain box etcReasons for maintaining correct filing angles and cutter lengths may include:* ensures chain is sharpened as per manufacturers recommendations
* enhances cutting performance
* decreased vibration
* accurate cutting
* decreased risk of kick back
* other

The correct depth gauge setting:* achieves optimum cutting speed as per manufacturers recommendations
* reduces the risk of kick back
* reduces chain vibration
* other
 |
| **18** | Explain the function and maintenance requirements of the chainMaintain the chain in accordance with operator’s handbook using appropriate tools | Function of the chain:* carries the cutting components to enable the cutting of timber

Maintenance of the chain:* checking cutters for damage and selecting the first cutter to sharpen
* having the chain secured in a chain vice or on bar in a bench vice or timber vice
* selecting and using a file of the correct size with a handle fitted to sharpen all of the cutters
* maintenance of top and side plate angles throughout sharpening of the whole chain
* ensuring a consistent cutter length is maintained
* removing burrs when applicable
* maintaining the height and profile of depth gauges
 |
| **19** | Reassemble chainsaw and cutting system to functional and operational standard | Upon completion of maintenance activities, the chainsaw including the bar and chain is reassembled in line with the operator’s handbook |
| **20** | State steps to be taken when a chainsaw is not repairable, faulty or non-operational  | Steps to take when a chainsaw is not repairable, faulty or non-operational may include:* labelling of the chainsaw and removing from service
* operator maintenance
* arranging for repair of the chainsaw
* other
 |
| **21** | Clean and tidy working area | Maintenance area is left in a clean and tidy state with tools and equipment appropriately cleared away |
| **22** | Describe the correct methods for disposing of waste | Disposal of waste from maintenance activities may include:* use of designated waste/recycle bins
* waste oils placed in approved containers for disposal
* other
 |
| **23** | Dispose of waste safely in line with legislation | All waste produced from maintenance activities is disposed of in line with legislation, good practice and/or site requirements |
| **24** | Select and wear appropriate compliant personal protective equipment (PPE) | Appropriate and compliant PPE for chainsaw operations will include:* chainsaw safety leg protection
* chainsaw safety footwear
* safety helmet
* eye and ear protection
* gloves appropriate for the task
* non-snag outer clothing
* each person must carry a personal first aid kit
* all PPE should conform to CE/EN standards
 |
| **25** | Identify the hazards, risks and controls associated with the site, task and machine  | Identify hazards, risks and controls relevant to the site task and machine  |
| **26** | State the emergency procedures relevant to the site | Emergency procedures relevant to the work site  |
| **27** | State the appropriate safe working distances from other operators during cross-cutting  | Safe working distance:* five metres or twice the length of the longest product
 |
| **28** | State routine bio-security controls  | Bio-security controls may include:* cross contamination
* disinfection/cleaning of equipment
* cleaning/disposal of PPE
* other
 |
| **29** | State environmental considerations specific to cross-cutting | Environmental considerations me include:* fuelling site
* type of fuel/oil
* use of battery powered saws
* other
 |
| **30** | Carry out pre-start checks and setting of the machine for use  | Pre-start checks and setting of the machine to include:* chain tension and condition checked for safe and effective use
* safety features checked for condition and function
* external nuts and bolts checked for security
* chainsaw contains sufficient fuel and chain oil for operations
* battery saw contains sufficient oil and charge
 |
| **31** | Demonstrate safe starting of the chainsaw | Chainsaw is checked started and function tested ready for use in accordance with manufactures information |
| **32** | Describe tension and compression in timber | Tension is found:* on the outside edge of strained timber and when cut, the kerf opens

Compression is found:* on the inside edge of strained timber and when cut, the kerf closes
 |
| **33** | Describe the procedure for removing trapped saw | Procedure for removing a trapped saw may include:* first switch off engine and/or apply chain brake
* lever the timber to open the cut
* drive a wedge into the closed kerf
* withdraw the saw
* use another saw to free the trapped saw cutting the timber at least 300mm (12”) from the trapped saw
 |
| **34** | State recognised methods required to cross-cut timber | Methods of cross-cutting timber:Timber under no tension or compression:* Single cut through to sever timber
* Partially cut through timber turn timber and sever

Timber under tension and compression:* release compression in timber then cut through tension
* bore cuts to initiate either tension or compression cuts

Timber under extreme tension/compression:* multiple tension cuts
* multiple compression cuts

Timber above guidebar length:* use a larger saw/guide bar
* use of reduction cut
* cut from both sides
 |
|  **35** | Cross-cut timber to length using a chainsaw in accordance with the job specification | Crosscutting of timber to length should include:* ensuring appropriate safe working distances from both fuel and other operators is maintained
* correct use of PPE
* timber is in a safe and appropriate position
* safe starting procedure adopted

Safe stance adopted including:* legs and feet are clear of the chain
* left thumb around the front handle
* chainsaw is stable/secure/supported during crosscutting
* minimal risk of muscular/skeletal injury
* bar aligned to maintain accuracy
* head out of alignment with the bar and chain
* use of throttle to cut safely and efficiently
* cutting techniques employed to complete severance of timber
* appropriate boring technique used if applicable
* sequence of cuts undertaken to prevent saw becoming trapped
* appropriate aids used for lifting, rolling or levering if applicable
* accuracy of measurement within site specification and reasonable tolerances
* tension and compression cuts should meet
* chain brake used appropriately
* saw switched off and left in safe position, bar cover replaced if appropriate
 |
| **36** | Use appropriate boring cuts to initiate either tension or compression cuts | Candidate to use appropriate boring cuts to sever timber |
| **37** | Describe how to apply ergonomic working methods | Ergonomic working methods may be applied by:* providing work areas at a comfortable height to avoid stooping
* operators working in a pattern to prevent unnecessary repetitive movements
* attempting to replace manual labour with machinery use where possible
* other
 |

|  |  |  |
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| **38** | Describe how to safely move timber | Moving timber safely may include the followingtechniques:* use of safe lifting techniques
* moving timber within the operators personal lifting capacity
* moving lightest to the heaviest
* dragging
* rolling
* aid tools
* machine
* other
 |
| **39** | State considerations for stacking of timber | Considerations for stacking timber may include:* extraction method
* species
* length/diameter
* product specific
 |
| **40** | State precautions to take to avoid uncontrolled timber movement | Uncontrolled timber movement may be avoided by:* ensuring manual stacking does not exceed one metre in height
* using site features such as tree stumps to brace timber behind
* avoiding stacking of timber on steep slopes or unsecured ground
* appropriate signage
* other
 |
| **41** | Stack produce for subsequent operations using appropriate aids and tools | Stacking of timber should take into account:* use of appropriate aids to handle / move products
* correct stance during lifting
* avoiding excessive lifting by levering, sliding, rolling
* quality of stacking must be to an agreed job specification
* tidy stacking of timber
* position of stack appropriate to method of extraction
* manually constructed stacks are limited to one metre high
* other
 |
| **42** | Check timber is in an appropriate and safe position | Timber should be left in a safe, stable condition and appropriate position |
| **43** | Dispose of waste safely in line with legislation | All waste produced is disposed of in line with legislation, good practice and site requirements |
| **44** | Used appropriate tools, equipment and personal protective equipment (PPE) | All tools, equipment and personal protective equipment is used in line with industry good practice |
| **45** | Carried out work to minimise environmental damage | It is ensured that any possible environmental damage is minimised at all times  |
| **46** | Worked in a way which maintains health and safety and is consistent with relevant legislation and industry good practice | All activities must be completed in a way which protects the operator and those around them |

1. Practical Table

### 201 - Chainsaw Maintenance and Cross-cutting

**All** criteria must be achieved.

|  |  |
| --- | --- |
| **Activity number and description** | **Achieved**  |
| **Chainsaw maintenance**  |  |
| 1. Explain the risk assessment process
 |  |
| 1. Identify the hazards, risks and controls associated with the site, task and machine
 |  |
| 1. Outline the emergency planning and procedures relevant to the working area
 |  |
| 1. Outline responsibilities as an operator under the Health and safety at work act and Provision and use of work equipment regulations (PUWER)
 |  |
| 1. State providers of industry good practice
 |  |
| 1. Explain why it is important to maintain chainsaws to manufacturers recommendations
 |  |
| 1. Identify and explain the function of all the key safety features
 |  |
| 1. Select appropriate maintenance tools for the power unit and cutting systems in accordance with operator’s handbook
 |  |
| 1. State hazards associated with battery powered equipment
 |  |
| 1. Explain battery power unit maintenance and checks
 |  |
| 1. State the benefits associated with the use of battery powered machines
 |  |
| 1. Explain the function and maintenance requirements of individual components

Maintain power unit in accordance with operator’s handbook using appropriate tools |  |
| 1. Explain the function and maintenance requirements of the guidebar

Maintain the guidebar in accordance with operator’s handbook using appropriate tools |  |
| 1. Describe the problems encountered when chain and guide bar are worn, damaged or poorly maintained
 |  |
| 1. State the information required to replace the chainsaw chain
 |  |
| 1. Identify different cutter types and their application
 |  |
| 1. Explain how to select the correct filing information for the chain and why this is necessary
 |  |
| 1. Explain the function and maintenance requirements of the chain

Maintain the chain in accordance with operator’s handbook using appropriate tools |  |
| 1. Reassemble chainsaw and cutting system to functional and operational standard
 |  |
| 1. State steps to be taken when a chainsaw is not repairable, faulty or non-operational
 |  |
| 1. Clean and tidy working area
 |  |
| 1. Describe the correct methods for disposing of waste
 |  |
| 1. Dispose of waste safely in line with legislation
 |  |
| **Cross-cutting**  |  |
| 1. Select and wear appropriate compliant personal protective equipment
 |  |
| 1. Identify the hazards, risks and controls associated with the site, task and machine
 |  |
| 1. State the emergency procedures relevant to the site
 |  |
| 1. State the appropriate safe working distances from other operators during cross-cutting
 |  |
| 1. State routine bio-security controls
 |  |
| 1. State environmental considerations specific to cross-cutting
 |  |
| 1. Carry out pre-start checks and setting of the machine for use
 |  |
| 1. Demonstrate safe starting of the chainsaw
 |  |
| 1. Describe tension and compression in timber
 |  |
| 1. Describe the procedure for removing trapped saw
 |  |
| 1. State recognised methods required to cross-cut timber
 |  |
| 1. Cross-cut timber to length using a chainsaw in accordance with the job specification
 |  |
| 1. Use appropriate boring cuts to initiate either tension or compression cuts
 |  |
| 1. Describe how to apply ergonomic working methods
 |  |
| 1. Describe how to safely move timber
 |  |
| 1. State considerations for stacking of timber
 |  |
| 1. State precautions to take to avoid uncontrolled timber movement
 |  |
| 1. Stack produce for subsequent operations using appropriate aids and tools
 |  |
| 1. Check timber is in an appropriate and safe position
 |  |
| 1. Dispose of waste safely in line with legislation
 |  |
| 1. Used appropriate tools, equipment and personal protective equipment (PPE)
 |  |
| 1. Carried out work to minimise environmental damage
 |  |
| 1. Worked in a way which maintains health and safety and is consistent with relevant legislation and industry good practice
 |  |

1. Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. To download the documents and to find other useful documents, go to the [*Centre Document Library*](https://www.cityandguilds.com/delivering-our-qualifications/centre-development/centre-document-library)on [*www.cityandguilds.com*](http://www.cityandguilds.com/) or click on the links below:

*[Quality Assurance Standards: Centre Handbook](https://www.cityandguilds.com/-/media/ilm-website/sharepoint-documents/_published-documents/qas-centre-handbook-pdf.ashx?la=en&hash=4A5447E601FBB9B560AAE285C5ECD56173ED22DA)*

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.

[*Quality Assurance Standards: Centre Assessment*](https://www.cityandguilds.com/-/media/ilm-website/sharepoint-documents/_published-documents/qas-centre-assessment-pdf.ashx?la=en&hash=2E8427DC28E5517AFE5778E08398F69DF48EB554)

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*](https://www.cityandguilds.com/-/media/cityandguilds-site/documents/delivering-our-qualifications/access-arrangements-when-and-how-to-apply-pdf.ashx?la=en&hash=8358C1BB86F242D18E468D771939693867E9CBEE)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*](https://www.cityandguilds.com/delivering-our-qualifications/centre-development/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, [*Contact us*](https://www.cityandguilds.com/help/contact-us)

**About City & Guilds**

As the UK’s leading vocational education organisation, City & Guilds is leading the talent revolution by inspiring people to unlock their potential and develop their skills. We offer over 500 qualifications across 28 industries through 8500 centres worldwide and award around two million certificates every year. City & Guilds is recognised and respected by employers across the world as a sign of quality and exceptional training.

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The City & Guilds Group is a leader in global skills development. Our purpose is to help people, organisations and economies develop their skills for growth. We work with education providers, employers and governments in over 100 countries across the world to help people, businesses and economies grow by shaping skills systems and supporting skills development.

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