

# Grader - A19

## Learning for CPCS

### Outcomes

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Through a combination of targeted training and experience, an individual with the grader will be able to:

<b>Roles and responsibilities</b>	<ul style="list-style-type: none"><li>• Describe the nature of the sector of industry and their role and responsibilities as a plant operator</li></ul>
<b>Preparing for work</b>	<ul style="list-style-type: none"><li>• Name and explain the purpose of principal components, the basic construction, controls and terminology</li><li>• Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation</li><li>• Undertake all pre-use checks</li></ul>
<b>Travelling and manoeuvring</b>	<ul style="list-style-type: none"><li>• Configure and set for site travel</li><li>• Travel over rough, undulating ground and level surfaces</li><li>• Manoeuvre in confined spaces</li></ul>
<b>Setting up for work</b>	<ul style="list-style-type: none"><li>• Configure and set for general grading and side-casting duties</li><li>• Configure and set for high bank work</li><li>• Explain actions required for hazards, underground and overhead services</li></ul>
<b>Working tasks</b>	<ul style="list-style-type: none"><li>• Grade, spread and level ground and materials</li><li>• Produce even finishes</li></ul>
<b>Shutting down</b>	<ul style="list-style-type: none"><li>• Carry out shut down and securing procedures</li><li>• Explain the loading and unloading procedures for machine transporting</li></ul>

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### Learning for CPCS Syllabus

Learning outcome	Training content	
<ul style="list-style-type: none"> <li>Describe the nature of the sector of industry and their role and responsibilities as a plant operator</li> </ul>	<ul style="list-style-type: none"> <li>Industry type</li> <li>Customer / client needs</li> <li>Sector contribution</li> <li>Role</li> <li>Reporting structures</li> <li>Lifelong skills</li> <li>Working practices</li> <li>Social responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>Communication with colleagues / management / other trades</li> <li>Health and Safety at Work Act</li> <li>Environmental issues</li> <li>Other trades</li> </ul>
<ul style="list-style-type: none"> <li>Name and explain the purpose of principal components, the basic construction, controls and terminology</li> </ul>	<ul style="list-style-type: none"> <li>Differing types</li> <li>Functions and applications</li> <li>Power units</li> <li>Hydraulic systems</li> <li>Transmissions</li> <li>Chassis / wheels</li> </ul>	<ul style="list-style-type: none"> <li>Stability / ground pressure</li> <li>Mouldboards</li> <li>Steering systems</li> <li>Attachments</li> <li>Safety systems</li> <li>ROPS / FOPS</li> </ul>
<ul style="list-style-type: none"> <li>Conform with manufacturer's requirements as per the operator's handbook, other types of information source and relevant regulations and legislation</li> </ul>	<ul style="list-style-type: none"> <li>Operator's Manual</li> <li>Machine decals</li> <li>Health and Safety at Work Act</li> <li>PPE</li> <li>Codes of Practice</li> <li>Site plans / drawings</li> </ul>	<ul style="list-style-type: none"> <li>Method statements</li> <li>Risk assessments / COSHH</li> <li>Inspection and reporting forms / procedures</li> </ul>
<ul style="list-style-type: none"> <li>Undertake all pre-use checks</li> </ul>	<ul style="list-style-type: none"> <li>Regular and non-scheduled maintenance procedures</li> </ul>	<ul style="list-style-type: none"> <li>Sequence of pre-use checks</li> <li>Defect reporting</li> </ul>
<ul style="list-style-type: none"> <li>Configure and set for site travel</li> </ul>	<ul style="list-style-type: none"> <li>Steering controls</li> <li>Attachments / accessories</li> <li>Travel position</li> </ul>	<ul style="list-style-type: none"> <li>Site travel</li> <li>Visibility</li> <li>Road travel / Road Traffic Act</li> </ul>
<ul style="list-style-type: none"> <li>Travel over rough, undulating ground and level surfaces</li> </ul>	<ul style="list-style-type: none"> <li>Travel routes</li> <li>Slopes / inclines</li> <li>Direction of travel</li> <li>Traction</li> <li>Ground conditions</li> </ul>	<ul style="list-style-type: none"> <li>Hazards</li> <li>Working area</li> <li>Environment protection / minimise damage</li> </ul>
<ul style="list-style-type: none"> <li>Manoeuvre in confined spaces</li> </ul>	<ul style="list-style-type: none"> <li>Visibility</li> <li>Limitations of vision</li> <li>Hazards</li> <li>Height restrictions</li> </ul>	<ul style="list-style-type: none"> <li>Environmental / noise / fumes</li> <li>Protection of ground / tight turns</li> </ul>

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### Learning for CPCS Syllabus (continued)

Learning outcome	Training content	
<ul style="list-style-type: none"> <li>• Configure and set for general grading and side-casting duties</li> </ul>	<ul style="list-style-type: none"> <li>• Type of ground</li> <li>• Required specification</li> <li>• Mouldboard size / type</li> </ul>	<ul style="list-style-type: none"> <li>• Machine positioning</li> <li>• Spoil placing</li> <li>• Mouldboard set-up</li> <li>• Spoil segregation</li> </ul>
<ul style="list-style-type: none"> <li>• Configure and set for high bank work</li> </ul>	<ul style="list-style-type: none"> <li>• Mouldboard angles</li> <li>• Required specification</li> <li>• Mouldboard controls</li> </ul>	<ul style="list-style-type: none"> <li>• Spoil placing</li> <li>• Visibility</li> <li>• Site markings</li> </ul>
<ul style="list-style-type: none"> <li>• Explain actions required for hazards, underground and overhead services</li> </ul>	<ul style="list-style-type: none"> <li>• Types of typical services</li> <li>• Reporting procedures for damage to services</li> </ul>	<ul style="list-style-type: none"> <li>• Warning / identification systems</li> <li>• Minimum distances and clearances</li> </ul>
<ul style="list-style-type: none"> <li>• Grade, spread and level ground and materials</li> </ul>	<ul style="list-style-type: none"> <li>• Types of materials</li> <li>• Spoil placing</li> <li>• Machine positioning</li> <li>• Angles of repose</li> <li>• Working on inclines</li> <li>• Traction</li> <li>• Working speeds</li> <li>• Cleaning working area</li> <li>• Stability</li> <li>• Other vehicles</li> <li>• Mouldboard angles</li> </ul>	<ul style="list-style-type: none"> <li>• Steering</li> <li>• Environmental factors</li> <li>• Feathering</li> <li>• Productive cycles of operation</li> <li>• Measuring depths and lines</li> <li>• Side-casting, spreading and windrow techniques (side-reaching, straddling etc.)</li> </ul>
<ul style="list-style-type: none"> <li>• Produce even finishes</li> </ul>	<ul style="list-style-type: none"> <li>• Required specification</li> <li>• Working speeds</li> </ul>	<ul style="list-style-type: none"> <li>• Mouldboard angles</li> <li>• Steering</li> </ul>
<ul style="list-style-type: none"> <li>• Carry out shut down and securing procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Shut down procedures</li> <li>• Security</li> </ul>	<ul style="list-style-type: none"> <li>• Parking and positioning</li> </ul>
<ul style="list-style-type: none"> <li>• Explain the loading and unloading procedures for machine transporting</li> </ul>	<ul style="list-style-type: none"> <li>• Compatibility</li> <li>• Positioning</li> </ul>	<ul style="list-style-type: none"> <li>• Security</li> <li>• Types of transporter</li> </ul>

**Note:** The listed training content should not be considered exhaustive and subjects may be added to reflect the individuals' working environment.

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### Learning for CPCS Safety critical

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Emphasis to be placed on the following topics:

Topic	Emphasis
<ul style="list-style-type: none"><li>• Visibility prior to and during reversing</li></ul>	<ul style="list-style-type: none"><li>• Constant and full visibility before and during manoeuvring and types of visibility aids and their limitations and weaknesses</li></ul>

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### Duration / Ratios

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To allow effective learning, these training times are recommended for this category. Candidates must be profiled to establish learning needs. Durations should be of a length to ensure the learning outcomes are met.

Experience	Accumulated hours
<ul style="list-style-type: none"><li>• Novice operators with no industry or machine experience</li></ul>	70
<ul style="list-style-type: none"><li>• Novice operators with industry experience but no machine experience</li></ul>	62
<ul style="list-style-type: none"><li>• Operators with unrelated (earthmoving) machine experience</li></ul>	42
<ul style="list-style-type: none"><li>• Operators with similar (earthmoving) machine experience</li></ul>	28

All candidates must have received the equivalent to 7 hours of site safety and induction training

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***To allow effective learning, the listed candidate / machine / instructor ratio is the maximum recommended for this category***

4 candidates : 2 machine: 1 instructor

### Resources

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Practical equipment	Theory equipment
<ul style="list-style-type: none"><li>• Grader that meets current legislation</li><li>• Operator's manual for the machine(s)</li><li>• Sufficient area of ground suitable for grading</li><li>• Stockpiles of materials</li></ul> <p><b>PLUS</b></p> <ul style="list-style-type: none"><li>• Suitable PPE</li><li>• Risk assessment for all areas where training is occurring</li></ul>	<ul style="list-style-type: none"><li>• PUWER 1998 Regulations</li><li>• HSE GS6</li><li>• Operator's Manual</li><li>• Specifications for types of graders</li></ul> <p><b>PLUS</b></p> <ul style="list-style-type: none"><li>• Suitable room for theory training purposes</li><li>• Welfare and rest facilities during training.</li></ul>

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# Grader - A19

## Learning for CPCS Category

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### Category description and types

CPCS defines a category as an item of plant or equipment used within the construction or allied industries and worked in accordance with the manufacturer's basic design. Although this category can have varying uses within industry and used with many attachments, for CPCS training and assessment standards, the descriptions reflect basic core use.

To identify a machine within this category, a typical grader would normally have the listed features and be used within the described characteristics.

#### Category features

- Multi-axled chassis containing a centrally mounted operating position, power, transmission, hydraulic and electrical units
- Front steering system with axle-angle capability
- Centrally mounted fully adjustable and removable mouldboard, hydraulically operated

#### Category characteristics

- Able to travel in forward and reverse and change direction during travel steering the front wheels
- Can travel and operate on uneven and loose ground and slopes
- Carry out grading and forming duties in a linear motion using mouldboard within the confines of the operating depth and height
- Can carry out ground-ripping duties with rear-mounted tines (optional)