OCR
Oxford Cambridge and RSA

Your guide to the changes for 2021

Following Ofqual's consultation on arrangements for the assessment of VTQs in 2020/21, we've reviewed units in our Cambridge Nationals and Cambridge Technicals being taken this academic year to provide specific guidance at qualification and unit level on changes to requirements or alternative approaches to support public health guidance.

Our changes are designed to make units to be taken in 2020/21 possible to complete, given the constraints you are all working with, and to make sure that the learning outcomes and assessment criteria can still be met.

We understand that the current disruption continues to change and also varies across regions, so our guidance gives acceptable alternatives you can consider when delivering units in your school /college while following the public health guidance.

Please use the specification and assignments available on our website, alongside this document, to plan and carry out assessment in 2020-21.

General notes

To meet social distancing requirements, workshop access in most centres is likely to be limited. The adaptations described here suggest alternatives to using the workshop for teaching and assessment. However, because the qualification is practical, it is not possible to remove workshop use from the requirements.

Where centres would normally teach in the workshop, we suggest they pre-prepare teaching videos from the workshop to support classroom lessons and any remote learning.

There are more resources on the 'Planning and Teaching' page for this qualification on our OCR website. In particular, see the Resource Lists towards the bottom of the page, which list additional resources including links to websites and other free resources that support remote learning.

Platforms available to deliver taught elements include SketchUp and FreeCAD. If centres use third party supporting programmes for remote working, they should also have relevant supporting resources to guide candidates in developing the portfolio evidence needed for the specification criteria.

When candidates need to use the workshop, centres should encourage group/bubble work to help manage the workshop time constraints.

In some cases, the assessment tasks could be completed remotely. In this case, centres will need to authenticate work further using a candidate presentation or a question and answer session. Details are given below where relevant. Remote work must also be accompanied by a witness statement.

Suggested adaptations

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
Unit 6: Circuit simulations and manufacture	**LO1** and **LO2**	**P1**: Produce circuit schematic diagram drawings using CAD software. **P2**: Carry out circuit simulation using CAD software. **P3**: Produce PCB layouts using CAD software to include track and component views. **M1**: Perform circuit analysis including the use of virtual instrumentation. **M2**: Analyse functionality of printed circuit board layout using CAD software.	Constraints of group working. These issues can reduce the time available. Specific software is needed for circuit development/ simulation/ testing.	Centres could teach via video. They could use demonstration videos and online sessions to cover the understanding of circuit modelling and development and CAD programs required in this LO. If available, candidates could access software via school websites or learning zones to develop circuit simulations etc. The circuit could be simplified. However, to make sure they cover all content, centres must include all areas of teaching content in the specification (for example, pin identification). Candidates could work in centre-agreed group bubbles in the classroom or workshop to develop and produce relevant circuits, masks etc.
	LO3	**P4**: Interpret circuit diagram to construct printed circuit board. **P5**: Safely manufacture a printed circuit board using appropriate techniques. **P6**: Safely assemble components to printed circuit board.	Limited access to workshops/ machines Constraints of group working. These issues can reduce the time available.	Candidates could work in centre-agreed group bubbles to assemble circuits. Candidates could assemble components (circuit population) in a classroom. They could pre-order components, which could be delivered in sealed bags. Candidates would need support from technicians to collate components, and extra time to sanitise components. Centres could provide pre-manufactured PCBs. If allowed by centre policy, centres could allow candidates to use camera phones to document their progress, safe working, and so on for an e-portfolio.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
	LO4	**P7**: Perform testing of an electronic circuit using a multimeter. **M3**: Undertake testing of the operation of an electronic circuit using different physical test equipment and fault-finding techniques. **D2**: Safely manufacture, test and verify a fully working electronic circuit, to include identification and rectification of faults, using a variety of construction methods.	Limited access to workshops/ machines. Constraints of group working. These issues can reduce the time available. Practical elements cannot be remotely delivered.	Candidates could work in centre-agreed bubbles to check functionality and fix faults. If possible, centres should provide separate test equipment for each bubble. Alternatively, equipment could be rotated after sanitising/ cleaning. Centres could use video resources to support the teaching of test procedures and the correct use of test equipment.
	LO5	**P8**: Identify applications of different component types used in commercial circuit construction. **P9**: Explain the benefits and drawbacks to manufacturers of using surface mount components and alternatives. **P10**: Explain the use of multiple layer PCBs in commercial circuit manufacture. **M4**: Compare manufacturing processes and quality assurance methods used in commercial circuit construction.	Limited access to workshops and machines. Constraints of group working. These issues can reduce the time available.	Centres could teach via video, using demonstration videos and online sessions to cover an understanding of: • circuit components, types, uses etc • PCB production methods • component population methods and multi layered PCB uses. Candidates could produce required evidence remotely for this LO. For example, they could produce a written report or presentation as detailed in Task 3 of the model assignment.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
Unit 8: Electrical operations	**LO1**	**P1**: Use technical data to identify different resistor types and their applications. **P2**: Use technical data to identify different cable types and their applications. **P3**: Use technical data to identify different capacitor types and their applications. **P4**: Use technical data to identify different switches and their applications. **P5**: Use technical and manufacturers' data to identify a different input, output and process electronic devices and their applications. **P6**: Calculate cable size and select appropriate cables for a range of voltage and current applications. **P7**: Calculate and select appropriate fuse types and ratings for a range of applications. **M1**: Determine a wide range of resistor values by measurement, calculation and colour code. **M2**: Analyse the operation and performance characteristics of a diverse range of electrical and electronic devices using appropriate data. **D1**: Evaluate methods and benefits of circuit protection.	Constraints of group working and distancing in the classroom. These issues can reduce the time available. Relevant documentation/ research is needed for each Pass criteria. The centre should offer several data sets to make sure that candidates are not all interpreting the same data.	Centres could use video and online teaching to cover the necessary LO understanding of component technical detail. Some specific maths inputs may be needed to support use of formula and correct calculations. Candidates could access software via school websites or learning zones to research relevant components or specific internet sites for components/technical details. For M1, candidates would need access to components and equipment. They could work in group bubbles in the classroom or workshop to determine resistor values, using group measuring equipment or colour codes. To reduce contact, colour codes could be provided as a PDF or Word document on the network. Alternatively, centres could give bubble groups scheduled time slots for using workshop and equipment. Equipment can be sanitised between groups. Candidates could produce a written report, as detailed in Tasks 2 and 3 of the model assignment. The evidence should be a presentation together with detailed speaker notes. It should also include evidence of the tasks performed in the form of annotated diagrams and/or photographs.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
	LO2	**P8**: Know the purpose and key features of relevant health and safety regulations, standards and codes of practice. **P9**: Identify hazards and risks associated with working on electrical systems. **P10**: Identify risks associated with working on live equipment. **M3**: Compare techniques to identify potential electrical hazards including reasons for their use. **D2**: Produce a detailed safe working method statement and risk assessment (including identification of appropriate PPE).	Limited access to workshops/ machines. Constraints of group working. These issues can reduce the time available.	Centres could teach online via video, with possible use of online sessions to cover required LO. A range of relevant electrical safety resources and videos could be used to support the LO criteria, including health and safety and risk assessment. Centres could provide a range of suitable images of work area and equipment to support health and safety and risk assessment documentation. For remote teaching, candidates need access to the school website and various guided resources. Candidates could produce required evidence remotely, such as through a written report as detailed in Task 1 of the model assignment. The evidence should be a presentation together with detailed speaker notes.
	LO3	**P11**: Use hand tools safely to construct a circuit. **P12**: Interpret a circuit diagram in order to construct a circuit. **M4**: Construct circuits and electrical/ electronic assemblies using appropriate joining techniques from circuit diagrams.	Limited access to workshops/ machines. Constraints of group working. These issues can reduce the time available. Practical elements cannot be remotely delivered.	Candidates could work in centre-agreed bubbles to construct circuits. Alternatively, the centre could use a rota for the workshop, with timed slots for each bubble group to reduce social contact. The centre could provide pre-manufactured PCBs, together with circuit diagrams. Candidates could assemble components (circuit population) in a classroom. They could pre-order components, which could be delivered in sealed bags. Candidates would need support from technicians to collate components, and extra time to sanitise components. As long as it is within with centre policy, centres could allow candidates to use camera phones to document their progress, safe working, and so on for an e-portfolio.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
	LO4	**P13**: Use test equipment on electronic equipment in order to undertake electrical fault finding. **P14**: Interpret manuals, data sheets and expected values in order to undertake electrical fault finding. **P15**: Carry out visual inspection to locate an electrical fault. **M5**: Produce a fault-finding plan and systematic troubleshooting plan for an electrical or electronic system. **D3**: Use a variety of fault-finding procedures and test equipment to establish faults in electrical equipment.	Limited access to workshops/ machines. Constraints of group working. These issues can reduce the time available.	Centres could use video and online teaching to cover the required LO understanding of testing procedures and the range of tests used for fault finding. Centres could scan a range of manuals and data sheets and provide them as PDF files to reduce contact with shared resources. Candidates could work on testing and fault finding in centre-agreed bubbles. The centre could use a rota for the workshop with timed slots for each bubble group to reduce social contact. Each bubble group could be allocated their own electronic items for testing and fault finding and allocated bubble group test equipment if resources allow. As long as it is within centre policy, centres could allow candidates to use camera phones to document their progress, safe working, and so on for an e-portfolio.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
Unit 10: Computer Aided Design (CAD)	**LO1** to **LO3**	**P1**: Use sketch-based features to create geometry. **P2**: Use applied and pattern features to create solid models. **P3**: Use mathematical calculation to solve reference geometry problems for use within the production of CAD models. **M1**: Use features, projected or intersection geometry and configuration and table-driven features to create geometry. **D1**: Use surface modelling techniques to enhance a 3D model. **P4**: Create CAD assemblies with multiple components. **P5**: Apply constraints within assemblies that appropriately define the position or movement of the model. **M2**: Create exploded views and animations of 3D CAD assemblies. **P6**: Create a range of views within 2D engineering drawings. **P7**: Create 2D engineering drawings that include appropriate dimensions and annotations. **M3**: Create detailed engineering drawings of assemblies. **D2**: Create engineering drawings which conform to British or International Standards.	Constraints of group working and distancing in the classroom. These issues can reduce the time available.	It may be possible for centres to teach this unit remotely. Centres could use various platforms to teach elements of the unit, either remotely or via video, to show candidates the use of available CAD programmes. Candidates could access the unit remotely if the centre has facilities for them to access suitable software to develop 2D and 3D drawings. Alternatively, candidates could use free software (such as SketchUp) to develop 2D and 3D drawings, including 3D solid models, to meet the drawing criteria, **P1-P7** including **M1-3**, **D1** and **2**.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
Unit 11: Materials Science	**LO5**	**P10**: Carry out tests to prove the suitability of a range of materials for their intended applications.	Constraints of group working and distancing in the classroom. These issues can reduce the time available.	Candidates could work on a range of materials/tests in centre-agreed work bubbles. The centre could use a rota for the workshop with timed slots for each bubble group to reduce social contact. Alternatively, each bubble group could be given their own specific equipment and materials for a range of tests for **P10**. It may be possible for centres to teach this unit remotely, apart from **LO5**. Centres could use various platforms to teach elements of the unit, either remotely or via video, to cover each LO requirement. Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. Candidates could produce the required evidence remotely for all other criteria for this LO. This could be either as a written report or a presentation, as detailed in the model assignment.
Unit 12: Mechanical simulation and modelling	**LO1** to **LO4**	**P1**: Carry out a simulation within a mechanical design assembly. **P2**: Simulate interferences, collision or tolerance issues within a mechanical assembly. **P3**: Carry out a simulation to assess the manufacture of a component or product.	Constraints of group working and distancing in the classroom. Limited access to workshop, CAD systems and simulation software. These issues can reduce the time available.	Centres may be able to teach this unit remotely if access to specific modelling software is available through the school network. Centres could use various platforms to teach mechanical simulations and modelling, either remotely or via video. This may require specific maths input/sessions. Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
		M1: Suggest manufacturing improvements to the design of a component or assembly based on simulation results. **P4**: Set up a Finite Element Analysis (FEA) simulation that reflects realistic boundary conditions. **P5**: simulation. Use mathematic, scientific and engineering principles to prove the accuracy of a Finite Element Analysis (FEA) simulation. **P6**: Carry out a Finite Element Analysis (FEA) of a component or product. **M2**: Recommend improvements to the design of a component based on the results of a Finite Element Analysis (FEA) simulation. **D1**: Evaluate the results of a component modification to improve its operational performance based on the results of Finite Element Analysis (FEA) simulation. **P7**: Setup a Computational Fluid Dynamics (CFD) simulation that reflects realistic boundary conditions. **P8**: Fluid Dynamics (CFD) simulation. Use mathematic, scientific and engineering principles to prove the accuracy of a Computational Fluid Dynamics (CFD) simulation.		Centres could reduce the complexity of modelling to reduce file sizes and network impacts, while still allowing access to all criteria bands. However, to make sure all content is covered, centres must cover all areas of teaching content in the specification.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
		P9: Carry out a Computational Fluid Dynamics (CFD) simulation of a component, product or system. **M3**: Recommend improvements to the design of a component, product or system based on the results of a Computational Fluid Dynamics (CFD) simulation. **D2**: Evaluate the results of a component, product or system modification to improve its operational performance based on the results of Computational Fluid Dynamics (CFD) simulation.		
Unit 13: Mechanical operations	**LO1**	**P1**: Safely prepare for working procedures in mechanical operations. **P2**: Interpret engineering drawings for manufacture. **P3**: Create a production plan. **M1**: Create a safe work method statement.	Constraints of group working and distancing in the classroom. These issues can reduce the time available.	Centres may be able to teach this unit remotely. Centres could use various platforms to teach elements of the unit, either remotely or via video. This could cover each LO requirement from workshop preparation through to planning and safe working. Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. Centres could use their own video or workshop images and annotate them with area preparation and safety practices.
	LO2 to **LO5**	**P4**: Use marking tools and equipment safely and effectively. **P5**: Use a range of hand tools safely and effectively. **P6**: Produce threads using taps and dies.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available.	Centres may be able to use prior evidence to support criteria, such as: • previous workshop images/working • previous notes on safe working.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
		P7: Produce a Standard Operating Procedure for assembly. **P8**: Use a range of temporary fastenings. **P9**: Use the centre lathe safely. **P10**: Manufacture turned parts using face, parallel and taper turn operations. **P11**: Calculate correct feed and speed for work piece. **M2**: Manufacture turned parts within a specified tolerance. **M3**: Cut grooves, knurls and drills using the tailstock. **D1**: Cut an external screw thread or internal bore so that the components have a good running fit. **P12**: Use the milling machine safely. **P13**: Manufacture milled parts using correct feed and speed for cutter. **P14**: Use the bench/pillar drill correctly and safely. **M4**: Manufacture milled and drilled parts within a specified tolerance. **M5**: Use pitch circles accurately. **D2**: Use a dividing head effectively and accurately. **P15**: Make effective use of appropriate measuring equipment.	Practical elements cannot be remotely delivered.	To support teaching and reduce the impact of social distancing in the workshop, centres could use setting-up videos of machining, turning and associated processes for all LO criteria. Centres could use supporting assessor witness statements. In the workshop, candidates should work in small centre-agreed group bubbles. The centre could use a rota for workshop access with timed slots for each bubble group to reduce social contact. For **M6**, candidates could produce required evidence remotely, such as through a written report or presentation as detailed in Task 3 of the model assignment.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
		P16: Apply quality control checks in the manufacturing process. **M6**: Adapt working practice in light of quality control results.		
Unit 16: Systems and programming	**LO1**	**D1**: Produce a well-structured and documented program for an embedded device applying appropriate programming techniques.	Constraints of group working and distancing in the classroom. These issues can reduce the time available. For **D1**, there may be an issue with access to relevant software.	Centres may be able to teach this unit remotely. Centres could use various platforms to teach elements of the unit, either remotely or via video, covering each LO requirement for systems and programming. Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. For **D1**, candidates need access to relevant software. Packages could be accessed through the school network or alternatives could be made available for candidates to work remotely.
	LO2	**P4**: Explain how embedded devices differ from microprocessors. **P5**: Describe practical applications for embedded devices. **P6**: Write a program for an embedded device.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available.	Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. For **P6**, candidates need access to relevant software. Packages could be accessed through school network or alternatives could be made available for candidates to work remotely. Flow charts could be used to show the program for an embedded device.
	LO3	**P7**: Model a PLC program that demonstrates understanding of ladder logic. **P8**: Load and operate a PLC program. **M2**: Construct ladder code to represent a latching function.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available.	Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. Candidates could work in centre-agreed bubbles to access the workshop to load and operate the PLC program.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
	LO4	**P9**: Explain structured approaches to the testing of software. **P10**: Explain the four accepted levels of testing. **M3**: Analyse the differences between the commercial use of alpha and beta testing. **D2**: Evaluate how metrics are used commercially to assess quality of software.	All LO criteria need access to relevant programs and hardware for loading and operating the program. Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available.	Centres could use a rota to allow access for each bubble group while allowing sanitising between groups. Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. Centres could use suitable platforms for remote teaching and delivery of supporting knowledge for the LO. For this LO, candidates could produce required evidence remotely, such as through a written report or presentation, as detailed in Task 3 of the model assignment.
Unit 17: Computer Aided Manufacturing	**LO1**	**P1**: Explain how computers are used in manufacturing systems. **M1**: Analyse the advantages of using computers in manufacturing.	Constraints of group working and distancing in the classroom. These issues can reduce the time available.	Centres may be able to teach this unit remotely. Centres could use various platforms to teach elements of the unit, either remotely or via video to candidates covering LO requirements. Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. For this LO, candidates could produce required evidence remotely. This could be a written report or presentation, as detailed in Task 1 of the model assignment.
	LO2	**P2**: Plan the production of a CNC machined component. **M2**: Produce a CNC part program using CAD/CAM software.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available.	Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for **P2** and **D1** to allow possible remote working.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
		P3: Produce a CNC part program utilising manual programming techniques. **P4**: Use mathematical calculations to produce accurate part programs for use within a CNC machine. **D1**: Analyse the advantages of the use of CAD/CAM software rather than manual programming techniques for a CNC machined component.	**P3**, **P4** and **M2** need access to relevant software programs and machines.	Candidates could work in centre-agreed bubbles with given workshop time slots. Social contact should be reduced and extra time allocated between groups/machines for cleaning. For **D1**, candidates could produce required evidence remotely, such as through a written report as detailed in Task 2 of the model assignment. This could also be evidenced by a presentation together with detailed speaker notes.
	LO3	**P5**: Set-up and operate a CNC machine to produce components. **M3**: Prove the accuracy of a machining process by checking a final result against specification. **D2**: Evaluate the effectiveness of the Computer Aided Manufacturing (CAM) process used and make recommendations for possible improvements.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available. **P5** and **M3** need access to relevant software programs and machines.	Candidates could work in centre-agreed bubbles with given workshop time slots. Social contact should be reduced and extra time allocated between groups/machines for cleaning. Candidates could use supporting resources and reference materials to develop relevant documentation for **M3** and **D2**. Centres could use various platforms to teach elements of the unit, either remotely or via video, to candidates covering LO requirements to support with **M3** and **D2**.
	LO4	**P6**: Explain different additive manufacturing techniques used in 3D printing. **D3**: Assess how additive manufacturing techniques are used for the production of final components and in advanced applications.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available.	Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. Centres could use various platforms for remote teaching and delivery of supporting knowledge for LO. For **D3**, candidates could produce required evidence remotely, such as through a written report, as detailed in Task 4 of the model assignment. They could also produce a presentation together with detailed speaker notes.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
	LO4	**P7**: Produce a 3D component using additive manufacturing techniques. **M4**: Produce 3D CAD data for the component in STL file format.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available. **P7** and **M4** need access to relevant software programs and machines.	Candidates could work in centre-agreed bubbles with given timeslots for workshop and classroom time. Social contact should be reduced, and time allocated between groups/machines to allow for cleaning.
Unit 21: Maintenance	**LO1** to **LO4**	**P1**: Describe different maintenance strategies and associated operations. **P2**: Explain how computers can be used to manage maintenance. **P3**: Explain factors which contribute to failure of mechanical and electrical systems and their causes. **P4**: Describe common failures in mechanical and electrical systems **M1**: Analyse why different maintenance strategies are suitable for different situations. **D1**: Evaluate a range of methods for predicting failure. **P5**: Explain the terms MTBF, MTTR and MTTF. **P6**: Calculate MTBF, MTTR and MTTF using statistical methods. **P7**: Describe how computers and software are used to data log in maintenance applications.	Constraints of group working and distancing in the classroom. These issues can reduce the time available	Centres could teach this unit remotely, apart from **LO5**. Centres could use various platforms to teach this unit remotely or via video etc to candidates covering all LO requirements. Candidates could use supporting resources and reference materials for online research, and to develop relevant documentation for each LO. For all LOs except **LO5**, candidates could produce evidence in the form of a written report or presentation with detailed speaker notes.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
		M2: Explain the significance of standard deviation and sample size when using statistical methods to determine maintenance strategies. **M3**: Explain how a CMMS system can be used to help in maintenance planning. **D2**: Evaluate the effectiveness of using reliability-centred maintenance data to improve the efficiency of engineered systems. **P8**: Explain different fault-finding methods. **P9**: Design a maintenance plan for a system. **M4**: Accurately interpret manuals, data sheets and expected values when planning and undertaking fault finding and maintenance operations. **D3**: Design a detailed maintenance strategy for a system. **M5**: Adapt a maintenance plan to address new faults found.		

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
	LO5	**P10**: Work safely in the chosen environment. **P11**: Carry out a visual inspection to locate a fault. **P12**: Follow a maintenance plan using tools appropriately. **P13**: Demonstrate ability to deal appropriately with any waste generated and return maintenance area to "as found" condition.	Constraints of group working and distancing in the classroom and workshop. These issues can reduce the time available. Practical elements cannot be remotely delivered.	To support teaching and reduce the impact of social distancing in the workshop, centres could use workshop videos to demonstrate maintenance procedures. To manage workshop use, centres could use small work group bubbles. Each bubble could focus on different machines that need maintenance or service. Centres could use specific maintenance equipment per machine for separate bubble groups. Alternatively, they could use specific workshop time slots per group to allow equipment to be cleaned between groups. Centres could use PDF maintenance manuals to allow individuals to access resources and reduce shared contacts. As long as it is within with centre policy, centres could allow candidates to use camera phones to document their progress, safe working, and so on for an e-portfolio. Candidates could use supporting resources and reference materials to develop relevant documentation for the LO.

Unit number(s) and title(s)	Learning objectives (LO)	Criteria	Issues identified in the unit(s)	Adaptations / solutions
	LO6	**P14**: Explain the need for fail safe design. **P15**: Explain the benefits of modular systems. **P16**: Give examples of where and why redundancy might be built into a product or system. **M6**: Explain how and why a moving part has been designed out of a specific product or system. **D4**: Analyse how an existing product or system could be redesigned for maintenance.		For this LO, candidates could produce the required evidence remotely. This could be a written report or presentation, supported by detailed speaker notes.

Support

OCR's team of expert Subject Advisors has created videos, webinars, and other resources to guide you through these changes and help you prepare your students for their exams in summer 2021.

These resources can be found on the qualification page on our website.

Contact us

If you would like to contact us, you can do so at:

vocational.qualifications@ocr.org.uk
@OCR_Vocational
01223 553998