

Level 3 Advanced Technical Extended Diploma in Horticulture (1080) (0174-010/510) (0174-37)

May 2019 version 1.1

Guide to the examination

Version and date	Change detail	Section
1.1 May 2019	Level 3 third retake opportunity guidance added	1. Details of the exam

Who is this document for?

This document has been produced for centres who offer **City & Guilds Level 3 Advanced Technical Extended Diploma in Horticulture**. It gives all of the essential details of the qualification's external assessment (exam) arrangements and has been produced to support the preparation of candidates to take the exam/s.

The document comprises four sections:

1. **Details of the exam.** This section gives details of the structure, length and timing of the exam.
2. **Content assessed by the exam.** This section gives a summary of the content that will be covered in each exam and information of how marks are allocated to the content.
3. **Guidance.** This section gives guidance on the language of the exam, the types of questions included and examples of these, and links to further resources to support teaching and exam preparation.
4. **Further information.** This section lists other sources of information about this qualification and City & Guilds Technical Qualifications.

1. Details of the exam

External assessment

City & Guilds Technical qualifications have been developed to meet national policy changes designed to raise the rigour and robustness of vocational qualifications. These changes are being made to ensure our qualifications can meet the needs of employers and Higher Education. One of these changes is for the qualifications to have an increased emphasis on external assessment. This is why you will see an external exam in each of our Technical qualifications.

An external assessment is an assessment that is set and/or marked by the awarding organisation (ie externally). All City and Guilds Technical qualifications include an externally set and marked exam. This must be taken at the same time by all candidates who are registered on a particular qualification. We produce an exam timetable each year. This specifies the date and time of the exam so you can plan your delivery, revision and room bookings/PC allocation in plenty of time.

The purpose of this exam is to provide assurance that all candidates achieving the qualification have gained sufficient knowledge and understanding from their programme of study and that they can independently recall and draw their knowledge and understanding together in an integrated way. Whilst this may not be new to you, it is essential that your learners are well prepared and that they have time to revise, reflect and prepare for these exams. We have produced a Teaching, Learning, and Assessment guide that is you should refer to alongside the present document ([Teaching, Learning and Assessment Guide](#)). If a learner does not pass the exam at their first attempt, there is only one opportunity to resit the exam, so preparation is essential.

Exam requirements of this qualification

Level 3 Horticulture - Theory exam (2) (2 hours and 30 minutes).

The exam is graded and a candidate must achieve at least a Pass grade in order to be awarded the qualification. (In addition to the exam, a synoptic assignment must also be completed and passed. You can find full details of the synoptic assignment in the *Qualification Handbook* and the *Synoptic Assessment Guide* -please see the links at the end of this document).

When does the exam take place?

This qualification involves a two- year programme of study. Candidates must take the exam at the end of the year of study. The exam is offered on two fixed dates in March or June. The exact dates will be published at the start of the academic year in the *Assessments and Exam Timetable* (<http://www.cityandguilds.com/delivering-our-qualifications/exams-and-admin>).

At the start of the programme of study, in order to effectively plan teaching and exam preparation, centres should know when the exam will be taking place and allocate teaching time accordingly. Section 2 of this document gives a summary of the content that needs to be covered in order to prepare learners for the exam and full details of this are given in the *Qualification Handbook*.

Form of exam

The exam for this qualification can be taken either on paper or online.

Can candidates resit the exam?

Candidates who have failed an exam or wish to retake it in an attempt to improve their grade, can do so **twice**. The third and final retake opportunity applies to Level 3 only. The best result will count towards the final qualification. If the candidate fails the exam three times then they will fail the qualification.

How the exam is structured

Each exam has a total of 80 marks available.

The exam is made up of approximately:

- 13-14 short answer questions
- 1 extended response question.

Short answer questions are used to confirm **breadth of knowledge and understanding**.

The extended response question is to allow candidates to demonstrate **higher level and integrated understanding** through written discussion, analysis and evaluation. This question also ensures the exam can differentiate between those learners who are 'just able' and those who are higher achieving.

More details about and examples of question types are given in Section 3 of this document.

Assessment Objectives

The exams are based on the following set of assessment objectives (AOs). These are designed to allow the candidate's responses to be assessed across the following three categories of performance:

- **Recollection** of knowledge.
- **Understanding** of concepts, theories and processes.
- **Integrated application** of knowledge and understanding.

In full, the assessment objectives covered by the exam for this qualification are:

Assessment objective	Mark allocation (approx %)
<i>The candidate..</i>	
AO1 Recalls knowledge from across the breadth of the qualification	30%
AO2 Demonstrates understanding of concepts, theories and processes from a range of learning outcomes.	50%
AO4 Applies knowledge, understanding and skills from across the breadth of the qualification in an integrated and holistic way to achieve specified purposes.	20%

Booking and taking the exam

All assessments for City & Guilds Technical Exams must be booked through Walled Garden. There is a deadline for booking exams, synoptic assessments and any other centre marked assessments, please refer to the time line to check these dates.

The exam must be taken under the supervision of an invigilator who is responsible for ensuring that it is conducted under controlled conditions. Full details of the conditions under which the exam must be taken can be found in the Joint Council for Qualifications (JCQ) document, [Instructions for Conducting Examinations \(ICE\)](#).

Special consideration

Candidates who are unable to sit the exam owing to temporary injury, illness or other indisposition at the scheduled time may qualify for special consideration. This is a post-examination adjustment that can, in certain circumstances, be made to a candidate's final grade. The Joint Council for Qualifications' guide to the special consideration process can be found at www.jcq.org.uk.

To make a request for special consideration, please contact: policy@cityandguilds.com

Access arrangements

Access arrangements are arrangements that allow candidates with particular requirements, disabilities or temporary illness to take assessments, where appropriate, using their normal way of working. The Joint Council for Qualifications document, *Access Arrangements and Reasonable Adjustments* gives full details and can be downloaded [here](#).

For further information and to apply for access arrangements please see:

[Access arrangements - When and how applications need to be made to City & Guilds](#)
[Applying for access arrangements on the Walled Garden](#)

2. Content assessed by the exam

Level 3 Horticulture - Theory exam (2)

The exam assesses:

- Unit 310: Business management in the land-based sector
- Unit 314: Understand the principles of sustainable management of turf
- Unit 324: Construct and establish sports and amenity turf areas
- Unit 327: Principles of sports turf maintenance.

Each exam assesses a sample of the content of these units. This means that a single exam will **not** cover 100% of the unit content. The full range of content will be assessed over a number of examination series. Details of the coverage of a particular exam paper will **not** be released in advance of the exam itself. Centres should **not** make assumptions about what will be assessed by a particular exam based on what has been covered on previous occasions. In order to be fully prepared for the exam, learners **must** be ready to answer questions on **any** of the content outlined below.

The table below provides an overview of how the qualification's Learning Outcomes are covered by each exam and the number of **marks** available per Learning Outcome (ie **not** the number of *questions* per Learning Outcome). In preparing candidates for the exam, we recommend that centres take note of the number of marks allocated to Learning Outcomes and to assign teaching and preparation time accordingly.

In preparing candidates for the exam, centres should refer to the Qualification Handbook which gives full details of each Learning Outcome. The following is a summary of only that qualification content which is assessed by the exam and **not** a summary of the full content of the qualification.

Unit	Learning outcome	Topics	Number of marks per section
310 Business management in the land-based sector	LO1 Know the breadth and importance of an industry in the environmental and land-based sector	1.1 Importance to the economy 1.2 Associated businesses	24
	LO2 Understand business resources and structures	2.1 Legal structure and organisation 2.2 Physical resource requirements 2.3 Job roles and responsibilities	
	LO3 Understand the business marketplace	3.1 Marketplace, customers and competitors 3.2 Supply chain 3.3 Quality management	
	LO4 Understand how to use financial and physical record keeping systems	4.1 Financial records 4.2 Physical records 4.3 Monitor business performance and progress	
314 Understand the principles of sustainable management of turf	LO1 Understand the principles of sustainable turf management	1.1 The terms sustainability and carrying capacity 1.2 Benefits and limitations of management strategies in sustainable management 1.3 The effects that components of the soil ecosystem, usage patterns and weather conditions have on the carrying capacity 1.4 Sustainable management of water and material inputs 1.5 Cost savings or additional costs of material inputs to improve the sustainability of turf surfaces	8
324 Construct and establish sports and amenity turf areas	LO2 Understand the principles of grading and drainage	2.1 The techniques of major and minor grading and equipment used for grading and earth movement 2.2 The suitability and layouts of types of drainage systems appropriate to turf areas	17

		2.3 Aftercare for drainage systems appropriate to turf areas	
	LO3 Understand the preparation and construction of land for sports turf surfaces	3.1 Land clearance methods 3.2 The establishment of swards from seed and turf for defined turf types and standards	
	LO4 Understand the use of artificial or ameliorated rootzones and specialised constructions	4.1 Specialised constructions for specific uses 4.2 The use and composition of artificial or ameliorated rootzones in specific sports.	
327 Principles of sports turf maintenance	LO1 Understand the effects of sports turf maintenance activities	1.1 Turf maintenance activities 1.2 Suitable conditions for maintenance operations 1.3 The effect of maintenance operations on the development of the turf surface	16
	LO2 Understand sports turf renovation activities	2.1 The effects of wear on the surface and the need for turf renovation work 2.2 Range of suitable renovation activities 2.3 Timing of renovation activities	
	LO4 Understand the use of turf and seed for the establishment and renovation of sports turf areas	4.1 The use of turf for the establishment and renovation of sports turf areas 4.2 The use of seed for the establishment and renovation of sports turf areas 4.3 Comparison between the use of turf and seed for the establishment and renovation of turf areas 4.4 Comparison of maintenance of newly established / renovated areas from turf and seed	
		Total marks for section:	65 marks
		Integration across units*:	15 marks
		Total marks for exam:	80 marks

* *Integration across units.* These marks relate to Assessment Objective 4. These marks are awarded to differentiate between levels of performance by candidates taking the exam. The marks are given for how well a candidate has applied their knowledge, understanding and skills from across the units that make up the qualification in an integrated way to meet the requirements of the exam questions.

3. Guidance

Vocabulary of the exam: use of 'command' verbs

The exam questions are written using 'command' verbs. These are used to communicate to the candidate the type of answer required. Candidates should be familiarised with these as part of their exam preparation.

The following guidance has been produced on the main command verbs used in City & Guilds Technicals exams.

A more detailed version of this table, which also includes the command verbs used in the assignments is published in *City & Guilds Technical Qualifications Teaching, Learning and Assessment* guide.

Command verb	Explanation and guidance
Analyse	Study or examine a complex issue, subject, event, etc in detail to explain and interpret, elements, causes, characteristics etc
Calculate	Work out the answer to a problem using mathematical operations
Compare (...and contrast) (or <i>describe</i> the similarities/differences)	Consider and describe the similarities (and differences) between two or more features, systems, ideas, etc
Define	Give the meaning of, technical vocabulary, terms, etc.
Describe	Give a detailed written account of a system, feature, etc (..the effect of...on...) the impact, change that has resulted from a cause, event, etc (..the process..) give the steps, stages, etc
Differentiate between	Establish and relate the characteristic differences between two or more things, concepts, etc
Discuss	Talk/write about a topic in detail, considering the different issues, ideas, opinions related to it
Distinguish between	Recognise and describe the characteristic differences between two things, or make one thing seem different from another
Evaluate	Analyse and describe the success, quality, benefits, value, etc (of an end product, outcome, etc)
Explain	Make (a situation, idea, process, etc) clear or easier to understand by giving details, (..how..) Give the stages or steps, etc in a process, including relationships, connections, etc between these and causes and effects.
Give example(s) illustrate/	Use examples or images to support, clarify or demonstrate, an explanation, argument, theory, etc
Give a rationale	Provide a reason/reasons/basis for actions, decisions, beliefs, etc

Identify	Recognise a feature, usually from a document, image, etc and state what it is
Justify	Give reasons for, make a case for, account for, etc decisions, actions, conclusions, etc, in order to demonstrate why they suitable for or correct or meet the particular circumstances, context
Label	Add names or descriptions, indicating their positions, on an image, drawing, diagram, etc
List	Give as many answers, examples, etc as the question indicates (candidates are not required to write in full sentences)
Name	Give the (technical) name of something
Propose	Present a plan, strategy, etc (for consideration, discussion, acceptance, action, etc).
Select	choose the best, most suitable, etc, by making careful decisions
State	Give the answer, clearly and definitely
Summarise	Give a brief statement of the main points (of something)

Question types

The following explains, and gives examples of, types of questions used in City & Guilds Technical exams. In preparing candidates to take the exam, it is recommended that you familiarise them with the requirements of each question type so that they can be effective and make best use of the time available when sitting the exam.

- An effective candidate will gauge the type and length of response required from the question and the number of marks available (which is given for each question on the exam paper).
- Short answer questions may not require candidates to write in complete sentences. Extended response questions will require a more developed response.
- Candidates should read the exam paper before attempting to answer the questions and should allocate time proportionate to the number of marks available for each question or section.

Question type:	Example question:	Mark scheme:
Short answer questions (restricted response) These are questions which require candidates to give a brief and concise written response. The number of marks available will correspond to the number of pieces of information/examples and the length of response required by the question.	Identify 4 turfgrass physiological responses when mowing heights are reduced. (4 marks)	Stimulated aerial shoot growth. (1 mark) Increase in shoot density. (1 mark) Finer leaf growth. (1 mark) Decreased root growth. (1 mark) Decrease in rhizome/stolon growth. (1 mark) Decrease in syntheses —therefore storage of carbohydrates. (1 mark)
Structured Response Questions These are questions that have more than one part (eg a), b), etc.). The overall question is made up of linked, short answer questions which move the candidate through the topic in a structured way. For example, the question will usually start with a 'recall'/'state'/'describe' question followed by an 'explain' to draw out	a) State two typical layouts of types of drainage systems appropriate to turf areas. (2 marks) b) Explain the advantages and disadvantages of each system and, for each system, where it would be used. (6 marks)	a) One mark each for type of drainage system: Herringbone. (1) Parallel /Grid. (1) Random /natural. (1) b) One mark for an advantage, one mark for a disadvantage and one mark for one area of use. Maximum of three marks per drainage layout.

understanding of the topic. They usually have a shared introductory 'stem', and the number of marks may increase through the question.

Herringbone

Uses

- large areas (1)
- irregular shaped areas (1)

Advantage

- Short lateral lengths means that depth is not usually a problem (1)

Disadvantage

- Complicated to install (1)
- May be difficult to locate later (1)

Parallel /Grid

Uses

- Regularly shaped areas (1)

Advantages

- Fewer junctions (1)
- Fairly easy to install (1)

Disadvantages

- Subject to silting up (1)
- Depth can be a problem (1)

Random /natural system

Uses

- Undulating land (1)
- The drain is only laid to perceived wet areas and hollows (1)

Advantages

- Low cost (1)

Disadvantages

- Difficult to locate (1)
 - High standard of initial site analysis and assessment (1)
-

Extended response questions

Extended response questions are those that require the candidate to write a longer written response using sentences and paragraphs. These usually require candidates to discuss, explain, etc. a topic in some detail. The question is often based on a short case study, scenario or other prompt. The level of detail should be gauged from the question and the number of marks available.

Example Question

Evaluate the use of aeration as a management tool for the maintenance of a soil based sports turf surface. (12 marks)

Mark scheme

Indicative content

Definition of aeration

Types of tine: Solid, slit, hollow, chisel, air, water

Other beneficial side effects:

- Compaction relief

- Improved surface

- Better penetration of water and air

- Fertiliser straight to rootzone

- Improved soil structure

- Improved rooting capacity

- Longer usage from surface

- Release toxic gases from the soil

- Increased shoot growth

- Disease prevention

- Thatch control (hollow tining)

Band 1 (1-4 marks)

A basic definition of why aeration is carried out. Limited mention of types of tines and other beneficial side effects.

Example band 1 response

Aeration allows air into the surface and relieves compaction.

There are different types of tine that can be used such as solid tine or hollow tines.

Plant roots will grow into the holes left behind and it will also help drainage.

Band 2 (5-8 marks)

A more detailed definition of aeration and the range of examples used is more detailed and extensive.

The beneficial side effects are considered, but become the primary focus over why aeration is being carried out and. Detail will show a good understanding of the topic.

Example band 2 response

Aeration allows fresh air to enter the soil surface and also stale air to move out of the soil. There are many different methods of aeration from solid tines to hollow tines and these also come in a range of sizes and the machinery used can be set at a range of depths and spacing.

Some tines will also have a more beneficial effect on the turf surface for example slit tines just push the soil apart and can quickly seal up again, but hollow tines leave a hole in the ground because the soil has been removed.

This means that if drainage is a problem, hollow tining is a better choice because the holes left behind will allow water to quickly move through the soil. Hollow tining is also better to get rid of compaction.

Band 3 (9-12 marks)

A considered definition of the term aeration and examples are given of how aeration assists in plant growth. The side effects of aeration along with the detailed evaluation of the advantages and disadvantage of tine type are explored.

Example band 3 response

Aeration is the exchange of gas in the soil; replacing the "soil air" rich in carbon dioxide with atmospheric air rich in oxygen.

The action of aeration creates holes or removes plugs of soil from the turf area, thereby creating an artificial system of large pores by which moisture and plant nutrients can be taken into the soil. This rapid intake in movement of water and air is recognized as a prime necessity in correcting issues within the soil.

The large pore spaces allow for growth of grass roots through the soil, resulting in stronger plants with deeper roots.

Each type of tine will have advantages and disadvantages and their choice will depend on many factors other than the task of affecting and exchange of gas. The type of surface in terms of the sport being played, the time of year, the level of sport and the other benefits being sought form the operation. Compaction relief within the soil can be considerable with operations such as hollow coring and verti-draining but less so with solid or slit tines. Thatch removal is best affected with hollow tines which physically remove the thatch however any form of aeration will also assist in the breakdown of thatch as the oxygen rich air enters the soil.

Drainage of water through the surface and into the soil will be increased with any form of aeration but, some methods such as the very narrow slit tines will not last long in most soils as the soil will quickly be pushed closed again by subsequent maintenance operations or play on the surface. Therefore, this type of aeration will need to be done more frequently in order to keep the surface open.

Examination technique

Candidates with a good understanding of the subject being assessed can often lose marks in exams because they lack experience or confidence in exams or awareness of how to maximise the time available to get the most out of the exam. Here is some suggested guidance for areas that could be covered in advance to help learners improve exam performance.

Before the exam

Although candidates cannot plan the answers they will give in advance, exams for Technical qualifications do follow a common structure and format. In advance of taking the exam, candidates should:

- be familiar with the structure of the exam (ie number and type of questions).
- be aware of the amount of time they have in total to complete the exam.
- have a plan, based on the exam start and finish time for how long to spend on each question/section of the exam.
- be aware of how many marks are available for each question, how much they should expect to write for each question and allow most time for those questions which have the most marks available.

At the start of the exam session

At the start of the exam, candidates:

- should carefully read through the exam paper before answering any questions.
- may find it helpful, where possible, to mark or highlight key information such as command words and number of marks available on the question paper.
- identify questions which require an extended written answer and those questions where all or part of the question may be answered by giving bullets, lists etc rather than full sentences.

Answering the questions

Candidates do not have to answer exam questions in any particular order. They may find it helpful to consider, for example:

- tackling first those questions which they find easiest. This should help them get into the 'flow' of the exam and help confidence by building up marks quickly and at the start of the exam.
- tackling the extended answer question at an early stage of the exam to make sure they spend sufficient time on it and do not run out of time at the end of the exam.

Candidates should avoid wasting time by repeating the question either in full or in part in their answer.

Candidates should **always** attempt every question, even questions where they may be less confident about the answer they are giving. Candidates should be discouraged however, from spending too long on any answer they are less sure about and providing answers that are longer and give more detail than should be necessary in the hope of picking up marks. This may mean they have less time to answer questions that they are better prepared to answer.

Extended answer questions

Before writing out in full their answer to extended questions, candidates may find it helpful to identify the key requirements of the question and jot down a brief plan or outline of how they will answer it. This will help clarify their thinking and make sure that they don't get 'bogged down' or provide too much detail for one part of the question at the expense of others.

Towards the end of the exam

Candidates should always set aside time at the end of the exam to read back through and review what they have written in order to make sure this is legible, makes sense and answers the question in full.

If a candidate finds they are running out of time to finish an answer towards the end of the exam, they should attempt to complete the answer in abbreviated or note form. Provided the content is clear and relevant, examiners will consider such answers and award marks where merited.

Further guidance on preparing candidates to take the exam is given in the City & Guilds publication, [Technical Qualifications, Teaching, Learning and Assessment](#) which can be downloaded free of charge from City & Guilds website.

4. Further information

For further information to support delivery and exam preparation for this qualification, centres should see:

City & Guilds

Qualification homepage: <http://www.cityandguilds.com/qualifications-and-apprenticeships/land-based-services/horticulture/0174-technicals-in-horticulture-and-forestry-arboriculture#tab=information>

which includes:

- Qualification handbook
- Synoptic Assignment
- Sample assessments

Technical Qualifications, Resources and Support: cityandguilds.com/techbac/technical-qualifications/resources-and-support

Joint Council for Qualifications

Instructions for Conducting Examinations: www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations