

# End-point assessment plan for Forensic Collision Investigator apprenticeship standard

Apprenticeship standard number	Apprenticeship standard level	Integrated end-point assessment
ST0850	6	Integrated degree apprenticeship

## Contents

Introduction and overview .....	2
EPA summary table .....	4
Length of end-point assessment period .....	5
Order of assessment methods .....	5
Gateway .....	5
Assessment methods.....	7
Reasonable adjustments .....	14
Grading.....	15
Re-sits and re-takes.....	21
Roles and responsibilities .....	22
Internal Quality Assurance (IQA).....	24
Affordability.....	24
Professional body recognition .....	25
Mapping of knowledge, skills and behaviours (KSBs) .....	26

## Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Forensic Collision Investigator apprenticeship standard. It is for end-point assessment organisations (EPAOs) who need to know how EPA for this apprenticeship must operate. It will also be of interest to Forensic Collision Investigator apprentices, their employers and training providers.

Full time apprentices will typically spend 42 months on-programme (before the gateway) working towards the occupational standard, with a minimum of 20% off-the-job training. All apprentices must spend a minimum of 12 months on-programme.

The EPA period should only start, and the EPA be arranged, once the employer is satisfied that the apprentice is deemed to be consistently working at or above the level set out in the occupational standard, all of the pre-requisite gateway requirements for EPA have been met and can be evidenced to an EPAO.

As a gateway requirement and prior to taking the EPA, apprentices must achieve all approved qualifications mandated in the Forensic Collision Investigator apprenticeship standard.

These are:

Achievement of 300 credits of the BSc (Hons) integrated degree in Forensic Road Collision Investigation from the on-programme apprenticeship, formally confirmed prior to the gateway progression. (The final 60 credits of the BSc (Hons) degree will be attributed to the end-point assessment).

Achievement of the knowledge, skills and behaviours in the Forensic Collision Investigator (Integrated Degree) apprenticeship standard.

For level 3 apprenticeships and above apprentices without English and mathematics at level 2 must achieve level 2 prior to taking their EPA.

The EPA must be completed within an EPA period lasting typically 7 months, after the EPA gateway.

The EPA consists of 3 discrete assessment methods.

The individual assessment methods will have the following grades:

### **Assessment method 1:** Project and Presentation with Questioning

- Fail
- Pass
- Distinction

### **Assessment method 2:** Professional Discussion underpinned by a portfolio

- Fail
- Pass
- Distinction

### **Assessment method 3:** Exam

- Fail
- Pass

Performance in the EPA will determine the overall apprenticeship standard grade of:

- Fail

- Pass
- Distinction

## EPA summary table

<b>On-programme</b> (typically, 42 months)	<p>Training to develop the occupation standard's knowledge, skills and behaviours (KSBs).</p> <p>Training towards English and mathematics Level 1 and 2, if required.</p> <p>Compiling a portfolio of evidence.</p>
<b>End-point assessment gateway</b>	<p>Employer is satisfied the apprentice is consistently working at, or above, the level of the occupational standard.</p> <p>Achievement of 300 credits of the BSc (Hons) integrated degree in Forensic Road Collision Investigation from the on-programme apprenticeship, formally confirmed prior to the gateway progression. (The final 60 credits of the BSc (Hons) degree and will be attributed to the end-point assessment).</p> <p>Apprentices must achieve the following approved qualifications mandated in the occupational standard:</p> <ul style="list-style-type: none"> <li>• English and mathematics Level 2</li> </ul> <p>Apprentices must submit:</p> <ul style="list-style-type: none"> <li>• A portfolio of evidence, the format and structure of which needs to be agreed between the employer, the apprentice and the EPAO.</li> <li>• The completed portfolio will be submitted at the gateway point.</li> </ul> <p>The project's subject, title and scope should be agreed between the employer and the EPAO.</p>
<b>End-point assessment</b> (which will typically take 7 months)	<p>Assessment method 1: Project and Presentation with Questioning With the following grades:</p> <ul style="list-style-type: none"> <li>• Fail</li> <li>• Pass</li> <li>• Distinction</li> </ul> <p>Assessment method 2: Professional Discussion underpinned by a portfolio With the following grades:</p> <ul style="list-style-type: none"> <li>• Fail</li> <li>• Pass</li> <li>• Distinction</li> </ul> <p>Assessment method 3: Exam With the following grades:</p> <ul style="list-style-type: none"> <li>• Fail</li> </ul>

	<ul style="list-style-type: none"> <li>• Pass</li> </ul> <p>Performance in these assessment methods will determine the overall apprenticeship standard grade of:</p> <ul style="list-style-type: none"> <li>• Fail</li> <li>• Pass</li> <li>• Distinction</li> </ul>
<b>Professional recognition</b>	<p>Aligns with recognition by:</p> <ul style="list-style-type: none"> <li>• Institute of Traffic Accident Investigators</li> <li>• Chartered Society of Forensic Science</li> </ul>

## Length of end-point assessment period

The EPA will be completed within an EPA period lasting typically of 7 months, after the EPA gateway.

## Order of assessment methods

The assessment methods can be delivered in any order.

## Gateway

The EPA period should only start once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, that is to say they are deemed to have achieved occupational competence. In making this decision, the employer may take advice from the apprentice's training provider, but the decision must ultimately be made solely by the employer.

Apprentices must achieve the following approved qualifications as mandated in the occupational standard:

- English and maths level 2. For those with an education, health and care plan or a legacy statement the apprenticeships English and mathematics minimum requirement is Entry Level 3 and British Sign Language qualification are an alternative to English qualifications for whom this is their primary language
- Achievement of 300 credits of the BSc (Hons) integrated degree in Forensic Road Collision Investigation from the on-programme apprenticeship, formally confirmed prior to the gateway progression. (The final 60 credits of the BSc (Hons) degree will be attributed to the end-point assessment).

For the Project and Presentation with Questioning:

The project will cover one area of collision investigation where the apprentice has identified a particular area of collision investigation which they have encountered during their apprenticeship and where they have found the current research to be outdated, lacking or incomplete and where further research needs

to be carried out or where the existing research could be reviewed or updated for the benefit of the collision investigation community.—The employer will ensure that the project has real world application and the EPAO will ensure it meets the requirements of the EPA (including suitable coverage of the KSBs assigned to this assessment method). The EPAO must sign off a project proposal to confirm its suitability at the gateway. The project proposal should include:

- Project title, subject and scope
- A 300 word synopsis of the project including details of the apprentice's role
- The timeline for the project

For the Professional Discussion, the apprentice will be required to submit:

- A completed portfolio of evidence which will be submitted at the gateway point. The format and structure of the portfolio needs to be agreed between the employer, the apprentice and the EPAO. However, the content must be sufficient to evidence the apprentice can apply the knowledge, skills and behaviours required as mapped to assessment method two (AM2); the Professional Discussion.
- There must be at least one piece of evidence relating to each knowledge, skill and behaviour mapped to AM2. One piece of evidence can be referenced against more than one knowledge, skill or behavioural requirement. It is expected that there will typically be 14 pieces (1 per duty).
- The portfolio should cover the KSBs for the assessment method it is underpinning and of activities that have been completed and referenced against the KSBs, supported by appropriate evidence, including photographic and video evidence, work products, Standard Operating Procedures, safety documentation, company policies and procedures as appropriate to the activities. Progress review documentation, witness testimonies, and feedback from colleagues or other professionals such as solicitors, barristers etc. should also be included. This is not a definitive list; other evidence sources are allowable.
- Reflective accounts and self-evaluation cannot be included as evidence
- The apprentice's Manager/Mentor will typically support the development of the portfolio in accordance with company policy and procedures, although the assessment organisation will provide further guidance on the content.
- Any employer contributions should focus only direct observation of evidence (for example witness statements) rather than opinions
- The evidence provided must be valid and attributable to the apprentice; the portfolio of evidence must contain a statement from the employer confirming this.

The portfolio is not directly assessed. It underpins the Professional Discussion assessment method and therefore should not be assessed by the EPAO. EPAOs should review the portfolio in preparation for the Professional Discussion, but they are not required to provide feedback after this review of the portfolio.

# Assessment methods

## Assessment method 1: Project with Presentation and Questioning

(This assessment method has 2 components.)

### Assessment method 1 component 1: Project Overview

The project is compiled after the apprentice has gone through the gateway process.

The project should be designed to ensure that the apprentice's work meets the needs of the business, is relevant to their role and allows the relevant KSBs to be demonstrated for the EPA. Therefore, the project's subject, title and scope should be agreed between the employer and the EPAO.

The rationale for this assessment method is that:

The occupation of Forensic Collision Investigator involves researching technical documents as part of an investigation and, where the research is found to be lacking or does not fit the circumstances of their collision, carry out experiments to fill the gap. The use of a project for assessment is therefore considered to be the best method of assessment and shows the use of some of the research KSBs in practice. Although it may appear that the KSB's covered by the project are limited in comparison with the size of the project, they are in fact in-depth in themselves. The project gives the apprentice, should they wish, the opportunity to publish work in an academic journal, further enhancing their standing within the collision investigation community.

#### Delivery

Apprentices will conduct a project on one area where they have found the current research to be outdated, lacking or incomplete and where further research needs to be carried out or where the existing research could be reviewed or updated for the benefit of the collision investigation community. The research will take the form of a written project undertaken after the gateway. Typically, the project will be completed within five months and must be submitted to the EPAO 6 months following the EPAO's approval of the project report's scope and title.

The employer will ensure the apprentice has sufficient time and the necessary resources, within this period, to prepare, plan and undertake the project.

The project should be in the form of an electronic submission using Microsoft Word in line with EPAO plagiarism software requirements.

Examples may include but are not limited to pedestrian walking speeds of people over the age of 60 years, the application of throw distance formula to modern shaped vehicles, the effect of wet weather braking with modern ABS systems.

As a minimum all projects must include:

- an introduction
- a literature review
- the scope of the project and the research question
- research and findings
- project outcomes
- recommendations and conclusions

The project has a word limit of 12,000. A tolerance of plus or minus 10% is allowed at the apprentice's discretion. Appendices, references and diagrams will not be included in this total.

The project must map, in an appendix, how it evidences the relevant KSBs for this assessment method.

When the project is submitted, the employer and the apprentice should verify the submitted work is that of the apprentice.

### **Required supporting material**

EPAOs will produce the following material to support this assessment method:

- Outline of the assessment method's requirements
- Example projects
- Marking materials
- A guidance document for employers and apprentices on selecting an appropriate project and how the assessment will take place including timescales

The independent assessor will review and assess the project report holistically together with the other components of this assessment method.

## **Method 1 Component 2: Presentation and Questioning**

### **Overview**

Apprentices will prepare and deliver a presentation and will respond to questions that will cover the KSBs assigned to this method of assessment.

The presentation will be based on the project and will cover the following:

- A summary of the project
- An explanation of how and why the techniques used were selected
- How the outcomes were achieved

The independent assessors must holistically assess the project, presentation and questioning against the KSBs as set out in this end-point assessment plan, using the grading criteria.

### **Delivery**

The presentation with questioning will last for 50 minutes, typically including a presentation of 20 minutes and questioning for 30 minutes. The discretionary additional 10% time can be allocated in any proportion across the presentation and questioning.

During this method, the independent assessor will ask questions generated by themselves from their review of the material in the project and subsequent presentation.

The presentation and questioning will be undertaken by an independent assessor. They will manage the session, open and close the session, ask independent assessor generated questions and make the final assessment decision.

Questioning should be used to assess knowledge, skills and behaviours mapped to this method and not covered by the presentation. A minimum of 6 questions should be asked. Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment



to tailor those questions appropriately. Independent assessors may ask further questions for clarification purposes and to allow the apprentice the opportunity to cover the KSBs mapped to this assessment method. The independent assessor must use the assessment tools and procedures that are set by the EPAO to record the presentation and questioning.

The apprentice may deliver the presentation in a format of their choice and the EPAO must ensure that they have access to the following:

- AV presentation equipment
- Flip chart
- Computer - note that specialist software required as part of the presentation must be provided by the apprentice's employer

The independent assessor will make a grading decision based on their holistic assessment of the project report, presentation and questioning.

A question bank must be developed by EPAOs. The question bank must be of sufficient size to prevent predictability and the EPAO must review it regularly (at least once a year) to ensure that it, and its content, are fit for purpose. The questions relating to the underpinning KSBs, must be varied yet allow assessment of the relevant KSBs.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes. Independent assessors must be developed and trained by the EPAO in the conduct of questioning and reaching consistent judgement.

### Requirements

- Apprentices must receive appropriate notice of their presentation and questioning. There should be a minimum of 10 working days' notice of the time, date and venue.
- The presentation must be submitted at the same time as the project. The independent assessor will have 10 days to review the project and presentation materials ahead of the presentation taking place.
- Video conferencing can be used to conduct the presentation and questioning but the EPAO must have processes in place to verify the identity of the apprentice and to ensure the apprentice is not being aided in any way e.g. use of a 360 degree camera to allow the independent assessor to look around the room during the session.
- Audio and video record of the presentation and questioning must be captured.
- Independent assessors must assess the presentation and questioning using the grading criteria in this document.

The independent assessor must:

- a. plan the assessment prior to it taking place
- b. ensure that the location for the assessment is appropriate
- c. ensure the presentation and questioning takes place in a room free from distractions with no other people present except those for QA purposes with prior approval from the EPAO
- d. ensure any special needs of the apprentice are taken into consideration in-line with the EPAO's Reasonable Adjustments Policy
- e. ensure that the apprentice understands the assessment process, the possible outcomes and how it is graded
- f. ensure that the apprentice is at ease
- g. ensure that the grading criteria and relevant documentation are to hand before commencing
- h. document the outcomes using the EPAO's standard documentation
- i. ensure the apprentice is not informed of the outcome of the assessment at this stage
- j. confirm the specification has been fully covered and the rules have been followed

- k. send documentation to the EPAO within the agreed time.

The presentation can be conducted either face-to-face or via online video conferencing. If using an online platform, EPAOs must ensure appropriate measures are in place to verify the identity of the apprentice, prevent misrepresentation and ensure the apprentice is not being aided in any way e.g. use of a 360 degree camera to allow the independent assessor to look around the room during the presentation.

### Venue

EPAOs must ensure that the presentation and questioning elements are conducted in a suitable controlled environment in any of the following:

- employer's premises
- other suitable venue selected by the EPAO (e.g. a training provider)
- video conferencing

The venue should be a quiet room, free from distraction and external influence. The EPAO is responsible for ensuring that the venue can facilitate the EPA.

### Marking

The independent assessor will make the final grading decision based on their own assessment.

### Support material

EPAOs will produce the following material to support this assessment method:

- Outline of the assessment method's requirements
- Standard documentation for recording of assessment results.
- Marking materials
- Question bank
- A feedback sheet for apprentices who fail this assessment method giving enough detail to allow the employer and the EPAO to decide whether a new project needs to be undertaken.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

## Assessment method 2: Professional Discussion underpinned by a portfolio (This assessment method has 1 component.)

### Assessment method 2 component 1: Professional Discussion underpinned by a portfolio

#### Overview

This assessment will take the form of a 90 minute professional discussion which must be appropriately structured to draw out the best of the apprentice's competence and excellence and cover the KSBs assigned to this assessment method. A professional discussion is not simply a question and answer session but a meaningful, in-depth two-way dialogue between the apprentice and the independent assessor. It allows the apprentice to use standardised questions and scenarios as a starting point to explore their own practice and experiences with the independent assessor to show how they

demonstrate the occupation's KSBs and that they are occupationally competent. A professional discussion is a well-recognised method of checking knowledge, skills and behaviours.

The apprentice will be given at least four weeks' notice of the professional discussion.

The rationale for this assessment method is that: -

Serious collisions by their very nature occur at random thus it will not be practical for an independent assessor to wait for a collision to happen in order to conduct an assessment. They are extremely difficult and expensive to simulate thus the professional discussion supported by the portfolio will allow the majority of KSBs to be assessed without the independent assessor being on call over long periods and at all times of the day and night. The professional discussion will establish and confirm the apprentice's understanding and application of knowledge, skills and behaviours set out in the occupational standard.

## Delivery

The Professional Discussion will cover the following four themes:

Theme 1: Scene and post scene

Theme 2: Reconstruction

Theme 3: Report

Theme 4: Presentation of the evidence

Having read the portfolio, the independent assessor will develop a series of questions for each theme. Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment to tailor those questions appropriately. Independent assessors may ask further questions for clarification purposes and to allow the apprentice the opportunity to cover the KSBs mapped to this assessment method.

Theme 1: Scene and post scene minimum of 5 questions

Theme 2: Reconstruction minimum of 5 questions

Theme 3: Report minimum of 3 questions

Theme 4: Presentation of the evidence minimum of 2 questions

To enable a smooth flow, the questions can cover more than 1 of the KSBs, however, the independent assessor must be clear which KSBs are being covered in each question and advise the EPAO of this.

The professional discussion will take 90 minutes +10% time can be given (at the discretion of the independent assessor) to enable the apprentice to complete their last response.

The professional discussion can be recorded using a variety of formats including; written notes, audio recording or filming. As a minimum, it must be audio recorded. The recording will provide evidence for the End-point Assessment Organisation and could be used for audit or standardisation purposes.

## Venue

The professional discussion should take place in a quiet room, free from distractions and influence.

The discussion can take place in any of the following:

- employer's premises
- a suitable venue selected by the EPAO (for example a training provider's premises)

- videoconferencing and the EPAO must satisfy themselves that the internet connection is sufficiently robust to allow for the free flow of the discussion.

Video conferencing can be used to conduct the interview, but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided in any way e.g. use of a 360 degree camera to allow the independent assessor to look around the room during the interview.

### Other relevant information

Independent assessors are responsible for generating suitable questions in line with the EPAO's training and standardisation process. A question bank must be developed by EPAOs. Independent assessors must use the question bank as a source for questioning and are expected to use their professional judgment to tailor those questions appropriately. The question bank must be of sufficient size to prevent predictability and the EPAO must review it regularly (at least once a year) to ensure that it, and its content, are fit for purpose. The questions relating to the underpinning KSBs, must be varied yet allow assessment of the relevant KSBs.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

### Marking

The independent assessor will make the final grading decision based on their own assessment.

### Support material

EPAOs will produce the following material to support this assessment method:

- Bank of questions to be maintained and updated on an annual basis
- Data capture form for evidence and gaps
- marking materials

## Assessment method 3: Exam (This assessment method has 1 component.)

### Assessment method 3 component 1: Exam

#### Overview

Apprentices will complete a written exam.

The rationale for this assessment method is:

An open question test is well recognised in this sector as a way of testing underpinning knowledge and skills. It is routinely used in assessment of collision investigators. The test will cover knowledge that is difficult to demonstrate or would be too complex to explain in the professional discussion and may not be shown in the project and presentation depending on the subject matter chosen. The rationale for the pass mark is to ensure equality with the degree.

## Exam format

The test can be:

- computer based
- paper based

## Test administration

Apprentices must have 180 minutes to complete the test.

The test is closed book which means that the apprentice cannot refer to reference books or materials.

Apprentices must take the test in a suitably controlled environment that is a quiet space, free of distractions and influence, in the presence of an invigilator. The invigilator may be the independent assessor or another external person employed by the EPAO or specialised (proctor) software, if the test can be taken on-line. The EPAO is required to have an invigilation policy that will set out how the test/examination is to be carried out. This will include specifying the most appropriate ratio of apprentices to invigilators to best take into account the setting and security required in administering the test/examination.

The EPAO is responsible for ensuring the security of testing they administer to ensure the test remains valid and reliable (this includes any arrangements made using online tools). The EPAO is responsible for verifying the validity of the identity of the person taking the test.

This assessment method will be carried out as follows:

### Questions

- A total of 7 open questions, consisting of 3 short and 4 long answer questions. A total of 70 marks will be available.
- The number of marks will vary depending on the complexity and how many parts there are to the question.
- The marks for each part will be given on the paper.
- Carry forward errors are allowed i.e. an error at the start of a question will lose marks however the remainder of the question will be marked based on the incorrect calculation.
- Candidates will be expected to base the time spent on a question or part of a question based on the number of marks available.
- Each test paper will have a distribution of questions across all the knowledge and skills mapped to this method to ensure that all the areas are covered.
- Apprentices will be supplied with an equation sheet as designed by the EPAO
- The use of calculators is allowed.
- Further time may be granted for apprentices with appropriate needs, in-line with the EPAO's Reasonable Adjustments Policy.
- The test must be delivered in controlled conditions, free from interruption and distractions.
- The test can take place at the apprentice's workplace or any other venue determined as appropriate by the EPAO. The EPAO is responsible for ensuring the venue can facilitate the EPA.
- Invigilation and marking

- The test must be invigilated and marked in line with the EPAO invigilation and marking policy.
- The test is closed book (i.e. the apprentice cannot refer to reference books or materials)
- Marking will be carried out by EPAO administrators/examiners following a marking guide produced by the EPAO. Electronic marking is also permissible, to improve marking reliability.

## Question and resources development

Questions must be written by EPAOs and must be relevant to the occupation and employer settings. It is recommended that this be done in consultation with employers of this occupation. EPAOs should also maintain the security and confidentiality of their questions when consulting employers. EPAOs must develop 'question banks' of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they, and the questions they contain, are fit for purpose.

## Required supporting material

As a minimum EPAOs will produce the following material to support this method:

- a test specification
- sample tests and mark schemes
- live tests and mark schemes
- analysis reports which show areas of weakness for completed tests/exams
- an invigilation policy
- a question bank
- supply apprentices with an equation sheet

## Venue

The exam should take place in a quiet room, free from distractions and influence.

The exam can take place in any of the following:

- employer's premises
- a suitable venue selected by the EPAO (for example a training provider's premises)

## Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making reasonable adjustments for this apprenticeship standard. This should include how an apprentice qualifies for reasonable adjustment and what reasonable adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this end-point assessment plan.

## Weighting of assessment methods

All assessment methods are weighted equally in their contribution to the overall EPA grade.

## Grading

### Assessment method 1: Project and Presentation with Questioning

	Fail	Pass Meets all of the pass criteria	Distinction Meets all of the pass criteria and all of the following:
<b>K16, S31, S32, S33, S34</b>	Does not meet the pass criteria	Identifies and reviews published research in the subject area to identify an area of research. Frames a research question relevant to the subject matter under investigation and conducts experiments to test the hypothesis. (K16, S31, S32, S33)  Collates results of experiments and research to draw meaningful conclusions. (S34)	Discusses the use and value of research in Forensic Collision Investigation and the legal view of it in cases presented to court. (K16, S31, S32, S33) Recommends areas for further research. (S34)

### Assessment method 2: Professional Discussion

KSBs	Fail	Pass	Distinction Meets all of the pass criteria and all of the following:
<b>Theme 1: Scene and post scene</b> K1-5.1, K7, K17, K20; S1-4 and S6-S10, S12, S14, S21, S25, S27, S30; B4, B5			
<b>K1, K20, S1, S30</b>	Does not meet the pass criteria	Explains how to evaluate the hazards found at the scene of an incident and establish a safe working environment. (K1, S1)  Describes the role of other emergency services personnel at the scene, liaise with others to ensure evidence is not lost and an integrated investigation takes place. (K20, S30)	Explains the limitations of initial risk assessment, the factors that can later influence that assessment and the actions that should be taken to resolve this. (S1)  Describes how liaison with other emergency personnel at the scene supports the adjusting of plans in response to a dynamic situation. (K20, S30)

<b>K2, S2, S3, S4</b>	Does not meet the pass criteria	<p>Describes how to preserve, record and analyse the scene evidence using the most appropriate method. (K2)</p> <p>Describes how to identify evidence and mark a scene and any scene evidence including any vehicles or objects involved in the incident. (S2)</p> <p>Describes the process of documenting the scene, scene evidence, vehicles and other evidence by note taking (digital, written or audio) and measuring. (S3)</p> <p>Explains the process of photographing and videoing the collision scene. (S4)</p>	Describes how to dynamically assess changes to the collision scene caused by weather or other emergency services personnel and adapts their marking and recording methodology to preserve evidence. (K2, S2, S3, S4)
<b>K3, S8</b>	Does not meet the pass criteria	<p>Describes the methods both practical and from research by which an investigator can establish the acceleration rate of vehicles under emergency braking or whilst pulling away. (K3)</p> <p>Explains how to:</p> <p>establish the deceleration rate of a non-ABS and ABS vehicle under emergency braking using an accelerometer;</p> <p>establish the deceleration rate of an object such as a motorcycle which has slid across a surface by drag testing with a load cell;</p> <p>describe how the tests can be adjusted to take account of slope and partial braking. (S8)</p>	Discusses the differences between static, peak and mean friction values and the friction ellipse and their influence on the calculation of deceleration and acceleration rates. (K3)
<b>K4, S9, S14, S21</b>	Does not meet the pass criteria	Explains, for <b>two</b> sources of digital data, the recovery process, describing how the integrity of the data can be maintained. Analyse and interpret the data as part of an investigation to describe the motion of the vehicle. (K4, S9, S14, S21)	Explains the rationale for and applies smoothing filters whilst preserving the integrity of the data and describes where it is appropriate to integrate with other evidence in providing corroboration. (K4, S14)
<b>K5.1, S10</b>	Does not meet the pass criteria	Describes the measurement method for <b>one</b> type of collision, pole impact, towed vehicle or head on collision. Describes the difference between velocity change and impact speed and the additional measurements required for both. (K5.1, S10)	Explains the process to analyse the results of initial crush damage calculations and how to make adjustments to refine the results. (K5.1)



			Describes how crush damage findings can be used together with scene data from an investigation to calculate impact speed. (S10)
<b>K7, S12</b>	Does not meet the pass criteria	Describes the use of spreadsheets to carry out the research. (K7, S12)	Explains how advanced calculation software is used such as MathCAD to carry out the research and describes the benefits it brings. (K7, S12)
<b>K17, S6, S7, S25, S27</b>	Does not meet the pass criteria	Describes the process followed to complete <b>one</b> vehicle examination of a car and <b>one</b> vehicle examination of a motorcycle that have been involved in a collision. Describes the components, electrical, mechanical and safety systems to identify defects, faults and use. Describe how any defects found would affect the roadworthiness of the vehicle and can identify incident cause and contributory factors. Explains how photography and notes (digital, written or audio) are used to produce written reports on the condition of the vehicle which comply with the rules and regulations in relation to expert witnesses. (K17, S6, S7, S25, S27)	Explains the importance of removing individual components for further investigation and consulting manufacturers and DVSA documentation reports on the condition of individual components. Explains how any wear/failure affects the handling of the vehicle. (K17, S6, S7, S25)
<b>B4, B5</b>		Describes the importance of collaboration with co-workers and valuing diversity and different approaches to work when working individually or part of a team. (B4)  Explains how they have led co-workers and provided support to stakeholders in the delivery of the organisational objectives. (B5)	

KSBs	Fail	Pass	Distinction
<b>Theme 2: Reconstruction</b> K8-K13, K15; S5, S15-19, S23, S24; B6			
<b>K8, S15</b>	Does not meet the pass criteria	Describes the most common published literature around human factors including how environmental factors may affect a person's response and how changes in the environment may affect vehicles involved in the collision. (K8)	Critically evaluates the background papers on which authors have based their research to further investigate the relevance of their research to a particular investigation. (K8)  Critically evaluates methods used to calculate the driver

		Explains how to select and apply an appropriate method to calculate the driver response time for a given collision. (S15)	response time for a given collision. (S15)
<b>K9, S16</b>	Does not meet the pass criteria	Identifies the features that show a vehicle is in a critical speed state and explains the measurements required to calculate speed. (K9)  Describes how to calculate the critical speed of a vehicle and/or bend. (S16)	Analyses the physics of a vehicle in critical speed including the interaction of the tyres and road surface. (K9)
<b>K10, S17</b>	Does not meet the pass criteria	Describes the kinematics of a pedestrian/vehicle collision. Identifies the appropriate model to use for a particular collision and uses that model to establish the speed of a vehicle at the point of collision. (K10, S17)	Analyses and describes each phase of a three-phase pedestrian collision model. (K10)  Justifies the best model to use for a pedestrian collision and calculates the speed together with the level of uncertainty. (S17)
<b>K11, S19</b>		Identifies the handling characteristics of a motorcycle and the various ways in which control can be lost. Identifies which mathematical model is appropriate to the circumstances of the collision under investigation and describes how to find the speed of a motorcycle involved in an incident by applying that model. (K11)  Describes the appropriate technique to measure the damage to a motorcycle involved in a collision and explains how to use the data to calculate its immediate approach speed. (S19)	By reference to technical papers, examines the use of more than one model to find a range of speeds for a motorcycle involved in a collision. (K11, S19)
<b>K12, S18</b>		Describes the process of evaluating video footage to calculate the speed of vehicles and pedestrians. (K12)  Explains the key steps in calculating speed from CCTV footage giving a general level of uncertainty. (S18)	.
<b>K13, S23, S24</b>		Describes how to run experiments to aid in an investigation into the circumstances of a collision and collects statistically sound results (K13, S23)	

		Explains how they have interpreted and incorporated results from published literature into their investigation into the circumstances of a collision. (S24)	
<b>K15, S5</b>		Describes the use of appropriate software to create accurate 2D plans, 3D models and simulations to assist in the reconstruction process. (K15, S5)	Evaluates how advanced tools can be used to perform further analysis such as (but not limited to) mirror surveys, sightline analysis and long sections. (K15, S5)
<b>B6</b>		Describes how they have acted independently to undertake CPD and critically reviewed published research for three different areas of collision investigation, exploring the science behind the research and considering its robustness. (B6)	Review the work of others and identify areas of weakness in the written report and suggest areas for development. (B6)

<b>KSBs</b>	<b>Fail</b>	<b>Pass</b>	<b>Distinction</b>
<b>Theme 3: Report</b> S22, S26, S29; B1, B2, B3			
<b>S22, S26, S29, B1, B2, B3</b>		<p>Explains how they analysed scene data, witness evidence and results of experiments, calculations and examinations, to enable them to describe the behaviour of a vehicle in the immediate lead up to and during an incident in a written report. (S22, S26)</p> <p>Describes the process of critically reviewing and providing feedback on a completed investigation carried out by another investigator. (S29)</p> <p>Explains how they established personal accountability and upheld values, moral codes and ethical standards with co-workers and organisations to ensure that actions are in the best interest of affected parties. (B1, B2)</p> <p>Explains how they interacted with people in a way that respected the actions and feelings of themselves and others. (B3)</p>	Describes how bias can be removed from the review process. (S29)

KSBs	Fail	Pass	Distinction
<b>Theme 4: Presentation of the evidence</b> K19, S28			
<b>K19, S28</b>	Does not meet the pass criteria	Describes how they delivered oral evidence to a formal hearing and the considerations taken to ensure it was a true reflection of the facts. (K19, S28)	Describes how, when questioned, they engaged with the chairperson/lawyers to answer questions in an eloquent manner and in a way that is not open to misinterpretation. (K19, S28)

## Assessment method 3: Exam

The following grade boundaries apply to the exam:

Grade	Minimum Score (%)	Maximum Score (%)
Pass	40	100
Fail	0	39

KSBs	Fail	Pass
<b>All of the statements below must be achieved to be awarded a pass:</b>		
K5.2, K6, K14, K18 S11, S13, S20	Does not meet the pass criteria	<p>Calculates velocity change and the actual speed of vehicles through the application of momentum, Delta V, EES and EBS (K5, S20)</p> <p>Applies Newtonian mechanics to a range of collision investigation problems to establish either speed, time, distance and acceleration or a combination of the same (K6, S11)</p> <p>Performs statistical calculations to find the uncertainty in calculations (K14, S13)</p> <p>Demonstrates a knowledge of how the law applicable in England and Wales applies to expert witnesses including:</p> <ul style="list-style-type: none"> <li>• The meaning of common law and standards of proof</li> <li>• Criminal and Civil Procedure Rules and their Practice Directions, the Civil Evidence Act</li> <li>• Opinion and Hearsay evidence</li> <li>• Case law relevant to expert evidence and reports</li> </ul> <p>(K18)</p>

## Overall EPA grading

All EPA methods must be passed for the EPA to be passed overall.

- Apprentices must gain a pass in all the assessment methods or a pass in one method plus a pass or higher in the other methods to gain a pass overall.

- Apprentices must gain a distinction in both assessment methods where a distinction is possible to gain a distinction overall and a pass in the exam.

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Assessment method 1: Project and Presentation	Assessment method 2: Professional Discussion	Assessment method 3: Exam	Overall grading
Fail	Any grade	Any grade	Fail
Any grade	Fail	Any grade	Fail
Any grade	Any grade	Fail	Fail
Pass	Pass	Pass	Pass
Pass	Distinction	Pass	Pass
Distinction	Pass	Pass	Pass
Distinction	Distinction	Pass	Distinction

## Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take. A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for the re-sit or a re-take. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

An apprentice who fails an assessment method, and therefore the EPA in the first instance, will be required to re-sit or re-take any failed assessment methods only.

The timescales for a re-sit/re-take are agreed between the employer and EPAO. A re-sit is typically taken within 2 months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within 4 months of the EPA outcome notification. All assessment methods must be taken within a 6 month period of each other otherwise the entire EPA will need to be re-sat/re-taken. Should the project be failed, the original project should be reworked rather than a new project be set. A period of 1 month will be allowed for the rework.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to distinction.

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of pass, unless the EPAO determines there are exceptional circumstances requiring a re-sit or re-take.

## Roles and responsibilities

Role	Responsibility
Apprentice	As a minimum, apprentices should: <ul style="list-style-type: none"> <li>○ participate in training/development opportunities to improve their knowledge, skills and behaviours as outlined in the occupational standard</li> <li>○ meet all gateway requirements</li> <li>○ understand the purpose and importance of EPA and undertake EPA</li> </ul>
Employer	As a minimum, employers should: <ul style="list-style-type: none"> <li>○ support the apprentice to achieve the KSBs outlined in the occupational standard to their best ability</li> <li>○ determines when the apprentice is working at or above the level outlined in the occupational standard and is ready for EPA</li> <li>○ select the EPAO and training provider</li> <li>○ confirm all EPA gateway requirements have been met</li> <li>○ confirm arrangements with EPAO for the EPA (who, when, where) in a timely manner</li> <li>○ ensure apprentice is well prepared for the EPA</li> <li>○ should not be involved in the delivery of the EPA</li> <li>○ ensure the apprentice is given sufficient time away from regular duties to prepare for and complete all post-gateway elements of the EPA, and that any required supervision during this time (as stated within this EPA plan) is in place</li> </ul>
EPAO	As a minimum, EPAOs should: <ul style="list-style-type: none"> <li>○ understand the occupational role</li> <li>○ appoint administrators/invigilators and markers to administer/invigilate and mark the EPA</li> <li>○ provide training and CPD to the independent assessors they employ to undertake the EPA</li> <li>○ provide adequate information, advice and guidance documentation to enable apprentices and employers to prepare for the EPA</li> <li>○ deliver the end-point assessment outlined in this EPA plan in a timely manner</li> <li>○ prepare and provide all required material and resources required for delivery of the EPA in-line with best practices</li> <li>○ use appropriate assessment recording documentation to ensure a clear and auditable mechanism for providing assessment decision feedback to the apprentice</li> </ul>

	<ul style="list-style-type: none"> <li>○ have no direct connection with the apprentice or their employer i.e. there must be no conflict of interest</li> <li>○ have independent assessor who have no direct connection with the apprentice their employer or on-programme learning i.e. there must be no conflict of interest</li> <li>○ maintain robust internal quality assurance (IQA) procedures and processes, and conducts these on a regular basis</li> <li>○ use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard</li> <li>○ conform to the requirements of the Register of End-Point Assessment Organisations (RoEPAO)</li> <li>○ conform to the requirements of the external quality assurance body for this apprenticeship standard</li> <li>○ organise standardisation events and activities in accordance with this EPA plan's IQA section</li> <li>○ organise and conduct moderation of independent assessors' marking in accordance with this EPA plan</li> <li>○ have, and operate, an appeals process</li> <li>○ arrange for certification</li> </ul>
Independent assessor	<p>As a minimum, an independent assessor should:</p> <ul style="list-style-type: none"> <li>○ understand the occupational standard and end-point assessment plan</li> <li>○ deliver the end-point assessment in-line with the EPA plan and without extending the EPA unnecessarily</li> <li>○ comply to the IQA requirements of the EPAO</li> <li>○ have no direct connection or conflict of interest with the apprentice, their employer or training provider; in all instances, including when the EPAO is the training provider (i.e. HEI)</li> <li>○ sourced from another University, industry or a professional body; or if none of the above options are available another department within the same University but must be independent of the apprentice's on-programme learning and assessment</li> <li>○ satisfy the criteria outlined in this EPA plan</li> <li>○ hold or be working towards an independent assessor qualification e.g. A1 and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading</li> <li>○ have the capability to assess the apprentice at this level</li> <li>○ attend the required number of EPAOs standardisation and training events per year (as defined in the IQA section)</li> </ul>

Training provider	<p>As a minimum, the training provider should:</p> <ul style="list-style-type: none"> <li>○ work with the employer to ensure that the apprentice is given the opportunities to develop the KSBs outlined in the occupational standard and monitor their progress during the on-programme period</li> <li>○ advise the employer, upon request, on the apprentice's readiness for EPA prior to the gateway</li> <li>○ play no part in the EPA itself</li> </ul>
-------------------	---

## Internal Quality Assurance (IQA)

Internal quality assurance refers to the requirements that EPA organisations must have in place to ensure consistent (reliable) and accurate (valid) assessment decisions. EPA organisations for this EPA must:

- appoint independent assessors who have knowledge of the following occupational areas:  
A practicing forensic collision investigator or have retired within the last 12 months.
- to hold a minimum of a Certificate in Higher Education in Collision Investigation
- appoint independent assessors who have recent relevant experience of the occupation/sector at least the same level as the apprentice gained in the last one year or significant experience of the occupation/sector.
- appoint independent assessors who are competent to deliver the end-point assessment
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- have robust quality assurance systems and procedures that support fair, reliable and consistent assessment across the organisation and over time
- operate induction training and standardisation events for independent assessors when they begin working for the EPAO on this apprenticeship standard and before they deliver an updated assessment method for the first time
- ensure independent assessors attend standardisation events on an ongoing basis and at least once per year

## End-point assessment organisations

HEIs will be responsible for the on-programme and EPA requirements. They must be on the Education & Skills Funding Agency's (ESFA) Register of Apprenticeship Training Providers (RoATP). In addition, they must be approved to offer the EPA for this apprenticeship standard and be on the ESFA's Register of End-point Assessment Organisations (RoEPAO).

## Affordability

Affordability of the EPA will be aided by using at least some of the following practice:

- online assessment



## Professional body recognition

This apprenticeship is designed to prepare successful apprentices to meet the requirements for registration as a Forensic Collision Investigator with

- Institute of Traffic Accident Investigators/Full Membership
- Chartered Society of Forensic Science/ Chartered Forensic Collision Investigator

# Mapping of knowledge, skills and behaviours (KSBs)

## Assessment method 1: Project and Presentation with Questioning

Knowledge	
<b>K16</b>	Know how to design and execute a research project to reach balanced and valid conclusions.

  

Skills	
<b>S31</b>	Critically appraise current subject literature and analyse shortcomings.
<b>S32</b>	Identify a research need and develop a research question.
<b>S33</b>	Using the scientific method conduct experiments or analysis to test a hypothesis.
<b>S34</b>	From research, develop valid and robust conclusions based on observations.

## Assessment method 2: Professional discussion underpinned by portfolio

Knowledge	
<b>K1</b>	Know what hazards are likely to be found at the scene of an incident and how to mitigate them to establish a safe working environment.
<b>K2</b>	How to preserve, record and analyse the scene of an incident. This may include examining, measuring, photographing, videoing and mapping the locus of the incident, the vehicles and other physical material present.
<b>K3</b>	How to accurately obtain the deceleration and acceleration rates of a vehicle using an accelerometer. How to establish deceleration and acceleration rates of vehicles and other objects by drag testing, from manufacturers' data or other documents.
<b>K4</b>	How to recover, critically appraise and interpret data from various data recorders such as digital tachographs, electronic control units, insurance data boxes.
<b>K5.1</b>	How to measure crush damage to a motor vehicle following a collision. Understand how crush damage, can be used to calculate velocity change and the actual speed of vehicles.
<b>K7</b>	How to use and obtain results from spreadsheets and other math calculation software.
<b>K8</b>	Be conversant with published literature around human factors for use in investigations. Know how environmental factors may affect persons and vehicles involved in the collision.
<b>K9</b>	Know what constitutes a critical speed state and understand what criteria to apply to a vehicle in critical speed.
<b>K10</b>	Understand the kinematics involved when a pedestrian is struck by a vehicle. Know which throw model to apply in the particular circumstances to find speed.
<b>K11</b>	Understand the handling characteristics of a two wheeled motorcycle and the various ways in which control can be lost. Know how to calculate speed from wheelbase shortening.
<b>K12</b>	How to evaluate video footage to calculate the speed of relevant objects.

<b>K13</b>	Following a collision know how to design and run experiments to obtain additional information to aid in a reconstruction ensuring that the results are valid, unambiguous and statistically sound.
<b>K15</b>	How to use software to produce plans, simulations and 3D models to assist in the reconstruction of an incident.
<b>K17</b>	Following a collision understand how to undertake a vehicle examination. Identify the mechanical component of the vehicle including tyres, brakes, suspension and steering. Identify both active and passive safety systems fitted to the vehicle. Identify the components of a vehicles electrical system. Know how to investigate/interrogate those components to detect defects and faults that may affect the handling of the vehicle (vehicles up to 7500kg and motorcycles).
<b>K19</b>	Present evidence to a Court, tribunal or other arena.
<b>K20</b>	How emergency services work both individually and collaboratively at collision scenes and during the post-collision process.

Skills	
<b>S1</b>	Determine the hazards and implement a safe working environment appropriate to the activity.
<b>S2</b>	Identify, preserve and mark the evidence found at the scene of an incident and/or on vehicles and objects relevant to the investigation.
<b>S3</b>	Document the scene and scene evidence including vehicles and other relevant features by notes (electronic, written, or audio or a combination) taking measuring either electronically or using manual measuring techniques.
<b>S4</b>	Photograph and video the incident scene including vehicles and other relevant features and objects.
<b>S5</b>	Use software to create visual products including 2D plans, 3D models and simulations using software.
<b>S6</b>	During a vehicle examination identify, document and record the condition of vehicle systems and component parts. Identify defects and faults.
<b>S7</b>	Following a vehicle examination describe how any vehicle defects found during the examination process would affect the roadworthiness of a vehicle and how it would or would not have contributed to the collision.
<b>S8</b>	Determine the deceleration and acceleration rates of vehicles and other objects using an accelerometer or by drag testing. Adjust the data to take account of slope or partial braking.
<b>S9</b>	Recover data from data recorders including digital tachographs, vehicle ECU's, and vehicle telematics.
<b>S10</b>	Use the appropriate technique to measure the crush damage caused to a vehicle(s) involved in a collision, assess the principle direction of force and any other adjusting factors to calculate speed.
<b>S12</b>	Use spreadsheets and other math calculation software to assist in the investigation process.
<b>S14</b>	Analyse and interpret the data from data recorders, including ECU's, digital tachographs, performance computers and vehicle telematics.
<b>S15</b>	Use an appropriate method to calculate the driver response time in a variety of situations such as night time recognition, limited visibility, low contrast and looming situations.
<b>S16</b>	Calculate the critical speed of vehicles and/or bends.
<b>S17</b>	Calculate vehicle speed from pedestrian throw.
<b>S18</b>	Calculate speed from CCTV footage.

<b>S19</b>	Following a collision, use the appropriate technique to measure the damage to a motorcycle and use the data to calculate its immediate approach speed.
<b>S21</b>	Maintain the integrity and security of digital data.
<b>S22</b>	Describe the behaviour of a vehicle in the immediate lead up to and during an incident.
<b>S23</b>	Carry out experiments as part of an investigation.
<b>S24</b>	Interpret and incorporate the results from published literature into the investigation.
<b>S25</b>	Identify, record and comment upon the condition of the vehicle, systems and component parts to identify defects, roadworthiness, incident causation, contributory factors.
<b>S26</b>	Analyse the scene data, witness evidence any experiment's, calculations and examinations to prepare a written report into the circumstances of a collision.
<b>S27</b>	Prepare written reports and in accordance the rules, regulations and guidance in force in relation to expert witnesses.
<b>S28</b>	Present evidence to a court or other arena e.g. criminal, civil, Coroners' courts, tribunal or hearing.
<b>S29</b>	Critically review a completed investigation carried out by another investigator. Give written and oral feedback as part of the review.
<b>S30</b>	Liaise with other emergency services personnel to ensure that scene evidence is not lost as a result of poor communication between different services.

Behaviours	
<b>B1</b>	Accountability - For self and others to ensure that actions are in the best interest of affected parties.
<b>B2</b>	Professional integrity - Maintain the highest standards of professionalism and trustworthiness, making sure that values, moral codes and ethical standards are always upheld.
<b>B3</b>	Emotionally astute - Understand and effectively manage own emotions in stressful situations and treat people with sensitivity.
<b>B4</b>	Team working - Collaboration, influence, and respect for others. Value diversity and difference in approaches to work, thinking and background.
<b>B5</b>	Supportive & inspirational leading - Role model the organisational values providing inspiration and clarity to colleagues and stakeholders. Consider how the wider organisation and others are impacted, and help others to deliver their objectives effectively.
<b>B6</b>	Continuing Professional Development (CPD) - Critically review published research. Accountability of own and others development needs, undertaking CPD. Curiosity of science, mathematics and engineering, proactively developing knowledge to ensure that decisions are based on strong evidence.

## Assessment method 3: Exam

Knowledge	
<b>K5.2</b>	Understand how, equivalent energy speed (EES) and equivalent barrier speed (EBS) can be used to calculate velocity change and the actual speed of vehicles.
<b>K6</b>	How to use Newtonian mechanics in collision investigation.
<b>K14</b>	How to perform statistical calculations to find the uncertainty in calculations.
<b>K18</b>	Know the law in relation to the writing of expert witness reports and what an expert may or may not say in Court.

Skills	
<b>S11</b>	Using Newtonian mechanics calculate speed, time, distance and acceleration.
<b>S13</b>	Calculate the range of uncertainty in any calculations.
<b>S20</b>	Demonstrate how EES, EBS and momentum can be used to assess the speed of a vehicle involved in a collision.