



## **TLM Level 3 Certificate in Human Factors in Emerging Technologies**

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The TLM Level 3 Certificate in Human Factors in Emerging builds on prior study of digital systems and ethics by developing deeper knowledge of how human behaviour, organisational culture, and governance shape the safe and responsible use of technology. Learners will explore advanced issues of accountability, trust, and transparency in smart and connected systems, considering how decision-making, error management, and ethical design influence the long-term reliability and acceptance of digital technologies.

Throughout the qualification, learners will analyse real-world case studies of human error, technology failures, and organisational responses, evaluating how “Just Culture” frameworks and robust reporting practices contribute to safety and improvement. They will also examine global perspectives on responsible technology, learning how cultural, legal, and societal differences affect the adoption of emerging technologies in homes, workplaces, and cities.

This qualification equips learners with the skills to apply ethical reasoning, critical thinking, and collaborative practices in digital environments. It provides a pathway to higher education in computing, digital ethics, or technology management, and prepares learners for employment in roles such as digital governance officer, compliance assistant, quality assurance technician, or technology support specialist. By focusing on the interaction between people and technology, the qualification develops learners’ ability to design, test, and promote systems that are safe, fair, and sustainable.

This qualification has been developed in consultation with Sparks, a company specialising in embedded systems, smart IoT technologies with Artificial Intelligence, and software development. Their insight into industry needs and current technical practices has helped ensure that the qualification content reflects the real-world skills, tools, and challenges learners are likely to encounter in operational and development roles within the embedded systems sector.



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# 1. For those in a hurry!

- 1.1** TLM's assessment model is common to most of its qualifications. It is based on competence-based assessment of coursework using a portfolio of evidence and supported by a free optional cloud-based evidence management system.
- 1.2** Learners must demonstrate competence against the assessment criteria from their day-to-day work and the tutor assessor must verify that they are competent in relation to the general level descriptor using indicative assessment criteria. TLM's external moderator will check the judgements and the quality of the evidence and provide feedback. This process is not graded; the intention is that it is a flexible way of checking basic practical competence in the subject at the qualification's framework level.

## Procedures

- 1.3** The first thing to do is to arrange assessor training with TLM. TLM trains at least one assessor as Principal Assessor who must accept responsibility for standards within the Centre. The Principal Assessor can train and appoint assessors within the Centre as long as they are competent to take on the work and are willing to sign an agreement on the web site to uphold standards.
- 1.4** TLM will provide initial training in the pedagogical model, and using the supporting technologies to provide the evidence needed. The purpose is to get you started and then we provide on-going support to ensure you are confident and we can work as a professional partnership. We advise new Centres to do some coursework assessment early so that they can receive feedback and quickly become confident in doing routine coursework assessment. Our aim is to make this no more onerous than normal routine assessments that anyone would do as a normal part of the teaching job. This gives more time to focus on teaching and therefore to support raising attainment.

## 2. Introduction

The TLM Level 3 Certificate in Human Factors in Emerging Technologies builds on prior study of digital systems and ethics by developing deeper knowledge of how human behaviour, organisational culture, and governance shape the safe and responsible use of technology.

The Level 3 Diploma will give learners the opportunity to:

- Engage with real-world case studies of error management, system failures, and ethical dilemmas.
- Achieve a nationally recognised Level 3 qualification
- Strengthen personal growth and confidence through structured, meaningful tasks that encourage deeper engagement with learning.

### 2.1 **TLM Level 3 Certificate in Human Factors in Emerging Technologies**

The objective of the qualification is to equip learners with the knowledge, confidence, and transferable skills needed to support their continued personal and professional development.

#### **Units**

- Unit 1 - Incident Investigation in Complex Systems. (6 credits)
- Unit 2 – Review Group Management (6 credits)
- Unit 3 - Reporting Culture in Technology. (6 credits)

### 3. Summary of Qualification Specification

#### 3.1 Level 3 Certificate (Annexe A)

The Level 3 Certificate in Human Factors in Emerging Technologies

Qualification Title: TLM Level 3 Certificate in Human Factors in Emerging Technologies

Qualification Number: XXXXXXXX

Qualification Level: Level 3

Total Credits: 18

Guided Learning Hours: 144

Total Qualification Time: 180

Assessment Methods: Coursework, E-assessment, Portfolio of Evidence

#### Assessment

Learners must demonstrate competence against the assessment criteria from their communication and involvement with the training materials and the trainer assessor must verify that they are competent in relation to the general level descriptor using indicative assessment criteria. TLM's external moderator will check the judgements and the quality of the evidence and provide feedback. This process is not graded; the intention is that it is a flexible way of checking basic practical competence in the subject at the qualification's framework level.

#### 3.5 Assessment

The internally assessed, externally moderated coursework for all qualifications is pass/fail but by submitting the evidence for external moderation, feedback can be given to the tutor on areas to improve for resubmission.

Evidence must be provided against the unit assessment criteria from practical tasks related to the learners' everyday work supported by tutor observations, portfolio completed, and or activities in line with the learning materials

The way evidence is gathered is up to the assessor, the only requirement is that it clearly supports the judgements against the assessment criteria and the relevant learning outcomes.

If on formative assessment the account manager finds gaps in evidence relating to a particular candidate, they will request more evidence before approving the award or the unit certificate. Assessors must then adjust their work to ensure all their learners are providing the appropriate level and breadth of evidence.

We encourage early submission of at least some evidence so that assessors are confident from the feedback that what they are providing is sufficient. In this way we can maintain standards while supporting improved efficiency.

Centres will be subject to the TLM Centre Assessment Standards Scrutiny (CASS) and further details of this, including our centre guidance, is freely available on the TLM website in our Policy Download Centre. <https://tlm.org.uk/policy-download-centre/>

## 4. Qualification Content

Mandatory	Optional Unit Bank
None	
<ul style="list-style-type: none"><li>• <b>Unit 1 - Incident Investigation in Complex Systems.</b></li><li>• <b>Unit 2 – Review Group Management</b></li><li>• <b>Unit 3 - Reporting Culture in Technology.</b></li></ul>	

# 5. Support

## Guidance and Assistance

**5.1** There is further guidance for coursework assessment on the TLM web site. All centres have an assigned Account Manager who will be pleased to help at any time. Our aim is to give professional assessors, most of whom are qualified tutors, the confidence to make judgements with a minimum of bureaucracy so that they can focus their time on maintaining their professional knowledge, skills and supporting learning through effective teaching rather than “chasing paper”.

There is often a confusion between bureaucracy and rigour, since unnecessarily complex bureaucracy can actually detract from rigour by obscuring the importance of the outcomes.

**5.2** **Web sites** - TLM provides support through cloud-based systems. Providing assessment grades and the management of certification through the TLM Centre management system is mandatory and all assessors are provided with training in its use.

It is simply a matter of recording learner competence against the unit criteria as the evidence is collected and claiming a certificate on behalf of the learner when a unit has been fully assessed.

**5.3** Use of the online community learning site is entirely optional. It offers a streamlined way for learners to submit evidence and for assessors and verifiers to manage feedback and tracking, reducing administrative workload for centres that choose to use it.

**5.4** **Telephone** and e-mail support are available to all Centres. There is a general convention of [firstname.lastname@tlm.org.uk](mailto:firstname.lastname@tlm.org.uk) for e-mail addresses.

# 6. Registration & Procedures

## Registration

**6.1** TLM's registration model allows centres to enter learners at times convenient to them. There are no late entry fees and no additional fees should a learner fail to produce evidence at a level but can meet the criteria at a lower level. This can reduce costs to the centres when compared to other qualifications.

There are no fees for replacement certificates or verification of certificates because all certificates can be directly authenticated against TLM's secure database. For details of current subscription costs please contact us or refer to the web site.

## Internal standardisation

**6.2** The Principal Assessor has the ultimate responsibility for consistency in assessment standards within centre. All assessors have signed a contract agreeing to uphold standards and should therefore co-operate with the Principal Assessor and Account Manager at TLM to ensure that standards across the centre are consistent.

It is advisable to send work samples to TLM early to check that evidence is at the right standard so that there is time to make any adjustments necessary to the course and learner expectations.

TLM will generally check a higher quantity of work from new assessors and feedback to ensure that they are confident to make appropriate judgements over time. This reduces risk and improves efficiency in the longer term.

## Authentication

**6.3** All assessors must take reasonable steps to ensure that any coursework evidence submitted by candidates is a true reflection of the candidates' competence. This is in keeping with the assessor undertaking to uphold and maintain standards in the contract with TLM.

**6.4** Certificates can be authenticated directly on-line using the certificate number or by scanning the QR code on the certificate. There is no charge and it makes it more likely that certificates will be checked and that in turn improves security. Certificate forgeries are a significant problem when authentication is not simple and straightforward because convincing forgeries are easy to achieve with recent technologies and will get easier as time goes on.

# 7. Other Considerations

## Access arrangements and special requirements

**7.1** All TLM's qualifications are intended to be accessible, as widely as possible.

Please refer to the Annex for further information.

Centres should contact TLM if they have any questions related to accessibility issues.

## Language

**7.2** The language for provision of this qualification is English only. This will only change if we have a significant demand in another language that is sufficient to cover the additional costs involved.

## Malpractice

**7.3** TLM has comprehensive policies and procedures for dealing with malpractice. These are documented with links on the web site at <https://tlm.org.uk/policy-download-centre/> Assessors should be familiar with these policies and make them clear to candidates. Assessors should inform their account manager if they suspect any instance of malpractice that could have a material effect on the outcome of any assessments, either for themselves or colleagues. This is part of the upholding of standards that is part of the contract with TLM.

## Equality of opportunity

**7.4** TLM promotes equality of opportunity through policies and procedures. These are again documented in detail on the web site at <https://tlm.org.uk/policy-download-centre/>

## Resources, Support and Training

**7.5** A clear goal is to enable learners to support all their IT user needs using resources freely and legally available from the internet. This is related directly to national policies for inclusion and equality of opportunity. The reality is that there is so much user dependence on proprietary applications that we can only support the transition to free and open resources through education and common sense.

**7.6** TLM does not require centres to use Free and Open-Source applications but it certainly encourages them to do so. Most of the key software applications needed to support any of the assessed units are available freely from the web including office suites, graphics and sound editing. As a nation we could save hundreds of millions if not billions of pounds in software licensing fees by providing users with the skills, knowledge and confidence to migrate to free and open-source applications. You Tube, OpenClipart.org, Wikipedia and many other sites provide free content that supports learning and the number and range of such sites is increasing.

## Annexe A

### Level 3 Certificate- Unit assessment - coursework guidance

The **Level 3 learner** has knowledge and understanding of facts, procedures and ideas in an area of study or field of work to complete well-defined tasks and address straightforward problems. Holder can interpret relevant information and ideas. Holder is aware of a range of information that is relevant to the area of study or work.

AND/OR

Holder can select and use relevant cognitive and practical skills to complete well-defined, generally routine tasks and address straightforward problems. Holder can identify how effective actions have been. Holder can identify, gather and use relevant information to inform actions.

**Moderation/verification:** The assessor should keep a record of assessment judgements made for each candidate and make notes of any significant issues for any candidate. They must be prepared to enter into dialogue with their Account Manager and provide their assessment records to the Account Manager through the on-line mark book. They should be prepared to provide evidence as a basis for their judgements should it be required by the Principal Assessor or their Account Manager/external moderator. Before authorising certification, the Account Manager must be satisfied that the assessor's judgements are sound.

### General Information

The Level 3 qualification has the following characteristics for learners:

- Apply well-developed knowledge and methods to solve non-routine problems.
- Exercise initiative, responsibility, and sound judgement in managing activities.
- Take ownership of their work and, where appropriate, support or guide others.
- Combine theoretical understanding with practical application to improve learning outcomes.
- Operate with increasing independence and accountability within defined parameters.
- These characteristics demonstrate the applied knowledge, autonomy, and evaluative skill expected of a UK Level 3 outcome, forming a solid foundation for progression to higher-level study or professional development.

### Requirements

- All assessed work must demonstrably meet Level 3 standards as defined within the qualification specification and Ofqual's RQF level descriptors.
- Assessors must, as a minimum, record assessment judgements within the online mark book on the TLM certification site.
- Evidence supporting assessment outcomes should be drawn from the learner's day-to-day work and may include lesson plans, schemes of work, or other relevant artefacts.
- Learning approaches should be adapted to meet differing learner needs, including those requiring additional support.
- The Certificate normally requires around 144 guided learning hours for new learners, with recognition of prior learning permitted where appropriate.
- Certification is based on outcomes.
- The learner must securely meet all Level 3 criteria to achieve.

## **Level 3, Unit 1 – Incident Investigation in Complex Systems.**

<b>1. Understand the purpose of investigating occurrences in technology</b>	<b>2. Gather and analyse information</b>	<b>3. Support fair and useful outcomes</b>
1.1 I can describe what an occurrence is in an embedded system.	2.1 I can collect logs, error messages, and user reports as part of an investigation.	3.1 I can describe how Just Culture principles affect the way investigations are carried out.
1.2 I can explain why occurrences should be investigated.	2.2 I can explain how structured questioning techniques support reliable information gathering.	3.2 I can explain how to write a fair and factual investigation report.
1.3 I can describe the difference between a technical fault, human error, and system failure.	2.3 I can identify factors that contributed to an incident (e.g. environment, process, communication).	3.3 I can identify opportunities for improvement instead of blame.
1.4 I can explain how incident investigations support learning and improvement.	2.4 I can use timelines to describe what happened and when.	3.4 I can describe follow-up actions that reduce future risk.
1.5 I can describe the impact of not investigating properly or fairly.	2.5 I can explain why it is important to avoid assumptions when analysing data.	3.5 I can explain the value of sharing findings across teams.

## **Level 3, Unit 2 – Review Group Management**

<b>1. Understand the role of review groups in safety and quality</b>	<b>2. Prepare for and run review meetings</b>	<b>3. Improve review culture and impact</b>
1.1 I can describe what a review group is	2.1 I can gather relevant data, documents, and reports for review.	3.1 I can explain how review meetings support a learning culture.
1.2 I can describe the types of issues that should be brought to a review group.	2.2 I can prioritise issues for discussion based on urgency and risk.	3.2 I can identify signs of blame or bias and describe how to steer toward facts.
1.3 I can explain how review groups support learning from incidents and trends.	2.3 I can describe how to create a safe space for open and respectful discussion.	3.3 I can describe how trend analysis connects different cases for improvement.
1.4 I can describe the structure of an effective review meeting.	2.4 I can document review outcomes, decisions, and actions clearly.	3.4 I can explain how review groups contribute to improving products and systems.
1.5 I can explain the importance of having diverse roles represented in a review group.	2.5 I can explain how to follow up to ensure decisions are turned into action.	3.5 I can describe how to support consistency in how reviews are run across teams.

## **Level 3, Unit 3 – Reporting Culture in Technology.**

<b>1. Understand what makes a strong reporting culture</b>	<b>2. Support good reporting practices</b>	<b>3. Lead cultural change in teams and organisations</b>
1.1 I can explain why reporting errors, issues, and risks is important.	2.1 I can describe how to encourage others to speak up about errors or near-misses.	3.1 I can explain how consistent action builds trust in reporting systems.
1.2 I can describe the barriers that prevent people from reporting.	2.2 I can explain how anonymity and trust support honest reporting.	3.2 I can describe how leaders can role-model good reporting behaviours.
1.3 I can explain how leadership influences reporting behaviour.	2.3 I can describe how reports should be triaged and responded to fairly.	3.3 I can explain how to track reporting trends and feed them into strategic improvements.
1.4 I can describe the difference between reporting systems and blame systems.	2.4 I can explain how feedback loops show people that their reports matter.	3.4 I can describe how strong reporting reduces long-term risk.
1.5 I can identify the features of a healthy, open reporting culture.	2.5 I can describe how reporting tools can be improved to remain simple and accessible.	3.5 I can explain how reporting culture can be integrated into onboarding and training.

## Accessibility Policies

TLM firmly believes that every learner should have an equal chance to excel in their studies and assessments, regardless of any disabilities they may have. To achieve this goal, TLM has developed a comprehensive and well-structured reasonable adjustment policy that is specifically tailored to cater to the needs of learners with disabilities. This policy is not only an essential aspect of TLM's commitment to inclusivity but also an integral part of creating a diverse and accessible learning environment.

The reasonable adjustment policy is designed to support learners with disabilities in various ways. It encompasses a range of accommodations, such as providing additional time for examinations, offering alternative formats for study materials, permitting the use of assistive technology, arranging for sign language interpreters, and ensuring accessible physical facilities. The implementation of these reasonable adjustments is meticulously carried out to ensure that they meet the individual needs of each learner, acknowledging the unique challenges they may face.

TLM is dedicated to making the reasonable adjustment process transparent and easily accessible for all stakeholders. Thus, the details of the policy are made readily available to all, including learners, educators, and TLM Centres. These details can be found on TLM's official website, ensuring that everyone is well-informed about the support and accommodations available to learners with disabilities.

Additionally, TLM Centres play a crucial role in facilitating this process. They are empowered to submit requests for other reasonable adjustments on behalf of learners, based on their specific requirements and circumstances.

TLM firmly believes that promoting a culture of inclusivity and understanding is fundamental to fostering an environment where learners can thrive, irrespective of their abilities or disabilities. By continuously evaluating and refining its reasonable adjustment policy, TLM ensures that it remains up to date with the best practices in the field of inclusive education.

TLM Qualifications is deeply committed to its duty as an awarding organisation to provide reasonable adjustments for learners with disabilities in accordance with the Equality Act 2010. By adhering to its comprehensive reasonable adjustment policy and collaborating closely with TLM Centres, TLM strives to create a learning landscape that supports and empowers all learners, ensuring they can reach their full potential and achieve academic success.

TLM Accessibility Policy: <https://t1m.org.uk/policies/general-requirements-for-regulated-qualifications/#3>

TLM reasonable adjustment policy: <https://t1m.org.uk/reasonable-adjustments-and-special-considerations-policy-2/>

TLM reasonable adjustments request form: <https://t1m.org.uk/wp-content/uploads/2022/03/TLM-RASC-form-1.docx>

TLM reasonable adjustments request form: <https://t1m.org.uk/wp-content/uploads/2022/03/TLM-RASC-form-1.docx>

### *Alignment with the CASLO Approach*

This qualification has been designed in line with the principles of the CASLO approach, ensuring each unit is clearly defined in terms of learning outcomes and assessment criteria, with outcomes structured around observable knowledge, skills, and behaviours. In doing so, we embrace CASLO's strengths in transparency, clarity, and learner-centred planning for curriculum, teaching, and assessment.

While we recognise that CASLO qualifications are typically characterised by a mastery model, whereby all outcomes must be met to achieve a pass, we have chosen to adopt a holistic approach to evidence collection and assessment. This means learners may demonstrate their achievement of outcomes across multiple pieces of evidence, and assessors may consider a broader context of performance, rather than requiring separate, isolated confirmation for each criterion.

This approach supports:

- flexibility in delivery and learner pacing
- the integration of learning across units
- and better accommodates diverse learner journeys, particularly for adults returning to education or learners with mixed prior experience.

We are aware of the potential limitations of the CASLO model—such as the risk of learner failure due to narrowly missing a single outcome—and have mitigated this by embedding formative assessment opportunities and maintaining strong internal quality assurance to support valid, reliable, and fair judgements.

By doing so, this qualification respects the CASLO model's intent—to confirm specified learning outcomes—while avoiding overly rigid application of the mastery principle that could undermine learner success or the demonstration of real-world competence.