The specification for:

Level 3 Award in Developing Lightning Apps for TV and Set-Top Boxes

The assessment model for the qualifications presented in this publication was designed by TLM in consultation with employers and academic institutions in order to offer the most up to date set of skills and experiences available at the time of delivery. The core units are based on RDK technologies and services, which is the most prevalent form of Broadband software solutions in use and has a recognised skills shortage. Learners study some optional units in areas of interest or ones that compliment other academic subjects they are studying. The overall assessment is based on coursework completion and an external examination.

Contents

1. For those in a hurry!

Please read the rest of the book later as the details are important!

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 assessment 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 Level 3 Award in Developing Lightning Apps for TV and Set-Top Boxes qualification is designed for a wide range of abilities and for people who require skills and competence in TV App development. This qualification has been designed for learners with at least 1-2 years of experience in app development, but this requirement has not been made mandatory.

2.1 **Level 3 Award in Developing Lightning Apps for TV and Set-Top Boxes.**
The Level 3 Awards is a qualification designed for people who require skills and competence in mobile app cyber security. The qualification consists of 1 unit:

Mandatory
One

Optional
None

3. Summary of Qualification Specification

3.1	**Level 3 Award (Annexe A)**

The Level 3 Award is a qualification designed for people who require a wide range of skills in IT and specifically in cyber security for mobile apps and operating systems. The qualification consists of a single unit.

Qualification Title: TLM Level 3 Award in Developing Lightning Apps for TV and Set-Top Boxes
Qualification Number: 610/0994/5
Qualification Level: Level 3
Total Credits: 5
Guided Learning Hours: 40
Total Qualification Time: 50
Assessment Methods: Coursework, E-assessment, Portfolio of Evidence

Assessment

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.

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 teacher 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 IT.

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 moderation 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.

4. Qualification Content

Mandatory	Optional (for reference)
5 CREDITS	
Unit 1 Developing Apps in Lightning (5 credits)	

5. Transferable Skills

5.1	**Key Subject Aims**

The over-arching aim is to enable learners to support their learning in all subjects using Open System and industry standard IT tools that are freely and legally available from the internet. Subordinate aims include:

- Developing the skills needed for employment.
- Gaining practical experience and competence with contemporary technologies including programming where appropriate.
- Increasing the capacity to transfer knowledge and skills between contexts.
- Developing practical skills in creativity and problem solving.
- Developing an understanding of the social and commercial impact of IT.
- Developing an understanding of the legal, social, economic, ethical and environmental issues raised by IT.
- Developing safe, secure and responsible practice when using IT including reducing risk.
- Developing the skills to work collaboratively with IT.
- Developing skills in critical evaluation and feedback.

5.2	**Knowledge and Understanding**

The following knowledge and understanding will be required to support learning for the qualification.

- Demonstrate knowledge and understanding of audiences at which work is targeted.
- Understand the purpose in common applications and/or applications they have used.
- Demonstrate knowledge and understanding of strengths and weaknesses in the way information is presented.
- Setup and configure a development environment for Lightning
- Understand the Lightning framework and its key components.
- Creating a sophisticated Lightning application
- Have the confidence to deal with the unfamiliar such as the code in a computer program and work out what to do.
- Completing a Lightning Project.

5.3	**Skills**

Opportunities are provided to support the following skills, the great majority of which will be assessed directly.

- Use appropriate package manager to download and install Lightning.
- Create a new Lightning app using correct Lightning commands
- Can build a Lightning app using correct Lightning commands.
- Can run a Lightning app using correct Lightning commands Communicate data and information in a form fit for purpose and audience.
- Can serve a Lightning app using correct Lightning commands and processes Develop appropriate and effective IT-based solutions in a range of contexts including computer programming solutions.
- Can demonstrate typical use cases for Lightning.
- Can create a Lightning application.

6. Support

	Guidance and Assistance
6.1	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 teachers, 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.
6.2	**Web sites** - TLM provides support through cloud-based systems. Providing assessment grades and the management of certification through the Markbook Site 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.
6.3	The **community learning site** provides free optional facilities for learners to submit their evidence on-line, linking it to the assessment criteria across single or multiple units. The assessor can accept or reject this evidence and comment on it providing a full audit trail for evidence. Moderator/verifiers can get immediate access to this evidence and so it is potentially a lot more efficient than alternative methods. No paper, no e-mails with file attachments necessary. There are facilities for progress tracking that can be based on criteria and/or units. The system can be linked as an extension to any standards compliant VLE/e-portfolio system for centres that are already committed to a specific VLE product. Training can be provided, and free support is available from your Account Manager. The aim is to eliminate all paper-based bureaucracy, all screen-shots and referencing that draws time away from teaching.
6.4	**Telephone** and e-mail support are available to all Centres. There is a general convention of firstname.secondname@tlm.org.uk for e-mail addresses. It is usually best to e-mail your account manager in the first instance. Google hangouts can be arranged for video conferencing support.

7. Registration & Procedures

Registration

7.1 TLM's registration model enables 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.

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

7.2 The Principal Assessor has the ultimate responsibility for consistency in assessment standards within a 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

7.3 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.

7.4 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.

8. Other Considerations

Access arrangements and special requirements	
8.1	All TLM's qualifications are intended to be accessible, as widely as possible. There is an extensive policy documented on the web site at https://tlm.org.uk/policy-download-centre/ Centres should contact TLM if they have any questions related to accessibility issues.
Language	
8.2	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	
8.3	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	
8.4	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	
8.5	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.
8.6	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 Award - 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:

- Achievement at RQF level 3 (EQF Level 4) reflects the ability to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problems. It includes taking responsibility for completing tasks and procedures and exercising autonomy and judgement subject to overall direction or guidance.
- Use understanding of facts, procedures and ideas to complete well-defined tasks and address straightforward problems. Interpret relevant information and ideas. Be aware of the types of information that are relevant to the area of study or work.
- Complete well-defined, generally routine tasks and address straightforward problems. Select and use relevant skills and procedures. Identify, gather and use relevant information to inform actions. Identify how effective actions have been.
- Take responsibility for completing tasks and procedures subject to direction or guidance as needed.

- The specification for the Level 3 certificate provides an outcome framework for assessment and is not intended to dictate any particular context for learning and so can be used with adults and be applied to a wide range of existing courses.

Requirements

- Standards must be confirmed by a trained Level 3 Assessor
- Assessors must as a minimum record assessment judgement as entries in the on-line mark book on the TLM certification site.
- It is expected that there will be routine evidence of work used for judging assessment outcomes in the candidates' records of their day-to-day work. Samples, including related plans and schemes of work should be available at the annual visit and/or by video conference.
- Different approaches to learning will be required in order to match differing needs, for example, the needs of children will be different from the needs of adults with learning disabilities.
- When the candidate demonstrates secure capability against each of the criteria in the unit, they are entitled to a certificate for passing the unit and the overall award.
- We expect at least 170 hours of guided study to be under-taken for the certificate for complete beginners generally new to formal education, but discretion can be used to take account of prior learning where this is sensible in individual cases. In terms of making the certificate, what matters is outcomes. Can the candidate securely meet the criteria?

Level 3, Unit 1 – Developing Apps in Lightning (5 credits)

1. Setup and configure a development environment for Lightning	2. Understand the Lightning framework and its key components	3. Creating a sophisticated Lightning application	4. Completing a Lightning Project
1.1 use appropriate package manager to download and install Lightning	**2.1** I can demonstrate typical use cases for Lightning	**3.1** I can implement Animations into a Lightning application	**4.1** I can create a Lightning application that implements a range of Animations, Texture Types into a bespoke application.
1.2 I can create a new Lightning app using correct Lightning commands	**2.2** I can demonstrate the purpose of WebGL and how it makes Lightning performant with its Render Engine	**3.2** I can implement Texture Types in a lightning application	
1.3 I can build a Lightning app using correct Lightning commands	**2.3** I can demonstrate the Lightning's Render Tree in code	**3.3** I can make a Lightning application that utilises API calls to pull data in to display	
1.4 I can run a Lightning app using correct Lightning commands	**2.4** I can demonstrate how Lightning implements routing	**3.4** I can implement different routes into a complex Lightning application	
1.5 I can serve a Lightning app using correct Lightning commands and processes	**2.5** I can demonstrate how Lightning handles states and state management	**3.5**: I can implement Lightning Templates into an application	