

**BRIEFING NOTE FOR THE CHIEF EXECUTIVE OFFICER,
THE TASMANIAN QUALIFICATIONS AUTHORITY**

SUBJECT: **Electronics – Foundation TQA 2**

PURPOSE: To seek accreditation of the proposed courses.

BACKGROUND: At its meeting of 3 October 2012 (Item 3.3) the Authority noted that electronics courses had accreditation expiring at the end of 2013. At its meeting of 5 December 2012 (Item 3.2) the Authority noted the following:

Electronics (ELT210109) Electronics (ELT215109)
Proposal : Call for EOIs for writer/s to produce one coherent course.

In the period 25 February to 12 March 2013 we invited comment the proposal not to develop a new TQA 2 size value 10 course in the area. Comments received supported this course of action.

At its meeting of 3 April 2013 (Item 2.4) the Authority:

- identified the strategic value it places on continuing to have courses in the electronics area
- determined that these electronics courses should be sourced from the mainland or developed by Rosny College in line with specifications of any work needed on the current courses in time for accreditation well before the end of the current academic year.

The Authority noted that, “coherent size 15 courses at TQA level 2 and level 3 with suitable assessment could be developed. The challenges are small numbers (and hence relatively high overheads in external assessment) and a highly localised take-up.” The Authority noted additional issues as per Attachment A of Item 2.4 (given here in part as **Attachment A**).

The Office undertook preliminary research to see if it would be possible to source courses from the mainland. Victorian, WA and NSW examples showed that these states did not appear to have distinct electronic courses in the senior secondary area. In NSW, for example, a 2 hour exam is held in addition to learners completing a stipulated VET qualification in the area.

A TQA Officer met with Rosny College staff in early April 2013 to discuss their willingness to lead the development of new Electronic courses. Following these discussions we developed specifications for

the work to be done (See **Attachment B**) and sent these as a draft to Rosny on 15 April 2013 for their comment. On 30 May 2013 Rosny asked us to re-sent the specifications. At its meeting of 5 June 2013 (Item 2.5) the Authority was informed that there was a very high risk that the required work would not be done on Electronics TQA 2 and 3 as Rosny College had yet to accept the task specifications and timelines. On 4 July 2013 Rosny told us about preliminary work they had done and asked for comment on ‘rough drafts’ they had prepared. These drafts reflected major, unresolved issues. Rosny formally accepted the specifications on 25 July 2013.

At its meeting of 7 August 2013 (Item 2.3) the Authority was informed that there remained a significant risk that the courses in Electronics will not be ready for accreditation consideration before the end of the year.

In early September 2013 Rosny College sent us draft course documents and asked that we circulate them for general comment, with comments to be sent directly to the writers. We were able to do so. This consultation occurred between 6 and 20 September 2013. On 22 October 2013 we received Accreditation Submissions (See **Attachment C**) and the proposed course documents. We made some formatting changes to the course document and re-worked a section related to safety so as to focus it on providers’ appropriate management of the risks of the hazards associated with learning and assessment activities.

The document was published as an exposure draft in the period 22 October to 5 November 2013 as part of the accreditation process. No comments were received.

The proposed course has been analysed against the Senior Secondary Course Accreditation Criteria. The report is given at **Attachment D**.

CURRENT SITUATION: The following course document is ready for accreditation consideration (**Attachment E**):

New courses:	Replacing:
Electronics – Foundation TQA 2 size value 15	Electronics TQA 2 size value 15 (and 10)

ISSUES:

1. There have been changes made to the Exposure drafts circulated for comment in light of the Analysis report and feedback from the course writer. These changes are reflected in the documents presented here for accreditation consideration:
 - addition of learning outcome related to safety
 - clarification of course structure and work

- requirements
- minor clarification of some standard elements
- correction of typographical and formatting errors
- change to EA award (from 6 A 1 B to 5 A 2 B) to align with other recently accredited TQA 2 courses with 7 criteria.

RECOMMENDATIONS: That the proposed course Electronics – Foundation TQA 2 size value 15 be accredited for use from 1 January 2014 until 31 December 2018:

That the courses be assigned a robustness level of 3.

That the courses be assigned the following characteristics for the TCE:

Course: Electronics – Foundation TQA 2 size value 15	TCE Contribution: level/credit points towards participation and achievement standard for PA or higher
	TQA 2, 15 credit points
	TCE Contribution: ‘Everyday Adult’ standard for SA award or higher
	Nil

PREPARED BY: Dr Mike Jenkins
Liaison and Development Officer, TQA

Date: 8 November 2013

APPROVED BY CEO: *Acting under delegation from the Tasmanian Qualifications Authority to accredit senior secondary courses.*
Delegation to the CEO of the power to make accreditation decisions under Section 26 is limited to those cases which meet the conditions below:

Delegation Conditions	Comment
The course proposed clearly fits all the criteria for accreditation established by the Authority.	The proposed course meets the Authority’s <i>Senior Secondary Course Accreditation Criteria</i> . See Attached Report.
Accreditation of the proposed course is consistent with Authority policy decisions, including the need to streamline the number of courses.	At its meeting of 3 April 2013 (and subsequent meetings) the Authority decided that the replacement course was required.

An assessment of risk to the Authority's reputation of a decision to accredit the course is agreed in consultation with the Chair of the Authority to be low.	The CEO and the Chair of the Authority met on 19 Nov 2013. It was agreed that accreditation of these proposed course was low risk.
Course accreditation will only be carried out by delegation when the decision is positive (all refusals will be made by the Authority meeting) and in full compliance with Authority policy decisions	The recommendation is for a positive decision (ie accreditation).
Proposals for new courses, unless previously decided by the Authority, whether or not fully compliant in all other respects, will fall outside the delegation	The proposed course replaces an existing one. It is not a 'new' course.
Cases where there is not agreement that the risk to the Authority's reputation is low would fall outside the delegation.	n/a

Signed: Dr Reg Allen

Dr Reg Allen

CEO, Tasmanian Qualifications Authority

Date: 19 Nov 2013

Acting under delegation from the Tasmanian Qualifications Authority to accredit senior secondary courses.

Attachments:

A: Extract From Attachment B of Authority Meeting 3 April 2013, Item 2.4

B: Specifications

C: Accreditation Submission

D: Analysed against the TQA's Course Accreditation Criteria

E: Proposed Course Document

ATTACHMENT A: EXTRACT FROM ATTACHMENT B OF AUTHORITY MEETING 3 APRIL 2013, ITEM 2.4

<i>Electronics</i> (ELT210109)	Call for EOIs for writer/s to produce one coherent course.	<p>The size value 10 course ELT210109 is a sub-set of the size value 15 course: the same criteria and standards are used, but less content is covered.</p> <p>In 2012, 6 qualifications were issued in ELT210109.</p> <p>In 2012, 130 qualifications were issued in the size value 15 course ELT215109.</p> <p>Providers have been invited to comment on the need/demand for these TQA 2 courses. One provider responded. It was reported that, <i>"...you are quite right in asking about the 10 point version of this subject [ie ELT210109]. I have used it maybe once; where a student needed recognition for having studied electronics but left before term 3 after gaining employment. In this case he would now get a PA in the '15' point subject provided the 'C's were achieved in the relevant criteria. Using this method would effectively make the ELT210109 redundant."</i></p> <p>It is anticipated that little revision of the course content and standards of ELT215109 is needed, and that re-consideration of the quality assurance mechanism used should occur.</p>
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Tasmanian Qualifications Authority

Specifications for the development of replacement TQA accredited course/s

Courses: **Electronics TQA level 3 (size value 15)**
 Electronics – Foundation TQA level 2 (size value 15 only)

Purpose

The purpose of this project specification is to guide the development of courses in the Electronics area to replace the current Advanced Electronics TQA 3 and Electronics TQA 2 courses that run out of accreditation at the end of 2013.

The new TQA 3 course - to be called 'Electronics' - and a single size value 15 TQA 2 course - to be called 'Electronics – Foundation' - will be submitted to the TQA for accreditation consideration by 31 October 2012, ready for implementation in 2014.

Background

The accreditation of the current courses in Electronics expires on 31 December 2013 (copies of the current course documents are available on the TQA website - see *References*).

At its meeting on 3 April 2013 the Authority identified the strategic value it places on continuing to have courses in the electronics area and determined that electronics courses should be sourced from the mainland or developed by Rosny College in line with specifications of any work needed on the current courses in time for accreditation well before the end of the current academic year.

The Authority also noted:

Electronics: coherent size 15 courses at TQA level 2 and level 3 with suitable assessment could be developed. The challenges are small numbers (and hence relatively high overheads in external assessment) and a highly localised take-up.

(See <http://www.tqa.tas.gov.au/13783>)

Preliminary research by the Office re-Victorian, WA and NSW courses show that these states do not appear to have distinct electronic courses in the senior secondary area. In NSW, for example, a 2 hour exam is held in addition to learners completing a stipulated VET qualification in the area.

Note: it has been decided that a size value 10 course at TQA level 2 is not required.

Outcomes required

- course documents complying with TQA template and guidelines (see *References* below)
- both the courses must:
 - have distinctive course content that has been reviewed regarding its currency and relevance
 - explicitly identify any overlap or relationships with VET unit/s of competency (eg same or similar content)
 - clearly identify pathways to TQA accredited and/or VET qualifications
 - assessed learning outcomes (criteria) that have
 - been reviewed regarding the number and relevance of both generic and course-specific criteria
 - standards that comply with the characteristics required by Criterion 4 of the TQA's *Course Accreditation Criteria* (see also Appendix F of the *Accreditation Guide for Developers of Senior Secondary Courses*) (see *References* below)
- the TQA 3 documentation will address the issue of the relatively high overheads in external assessment related to the course

- the TQA 2 course will serve as both a worthwhile qualification in its own right and as a foundation course for the TQA 3 course (see ‘Courses that serve a foundation purpose’ in *Accreditation Guide for Developers of Senior Secondary Courses* (pp.9-10))
- an accreditation submission covering the rationale for the courses and evidence of the consultation undertaken in their development.

The documents are to be presented electronically.

Timeframe

The final course documents and the accreditation submission must be presented to the TQA by 31 October 2013.

Consultation required

The course developer must consult with:

- providers of the current Electronics courses (contact details can be provided by the TQA)
- relevant subject matter experts
- other education providers that have an interest in these courses (e.g. UTAS, RTOs providing training and assessment in relevant electronics qualifications).

The evidence of consultation must show that it has been sufficient to identify all major relevant issues.

Course development and documentation

Course developers must familiarise themselves with the TQA *Accreditation Guide for Developers of Senior Secondary Courses* (see *References* below). A template is available to guide course documentation.

This project should develop courses based on: analysis of needs; feedback about the current courses; consideration of what else is available; and strategic directions. It is not simply about updating of the current course/s. Evidence of this review will form part of the accreditation submission.

Courses will incorporate sound curriculum design principles including:

- internal coherence
- balance between subject-matter-specific content and broadly applicable knowledge and skills
- balance between breadth and depth of learning
- balance between knowledge and process
- clarity of learning outcomes that are distinctive and assessable
- clearly expressed performance standards
- engagement of students in significant ‘powerful’ learning experiences.

Courses will be consistent with the national goals for schooling as identified in the Melbourne Declaration on Educational Goals for Young Australians (see *References*).

The course developer should also take account of the *Principles - Strategic Framework for Course Development* (see *References*), particularly Principle 5 (clear, distinctive learning outcomes); Principle 6 (relationships with other non-TQA courses); and Principle 8 (manageable number of TQA accredited courses).

Reporting

The course developer will submit to the TQA the following reports:

- by 31 August 2013: draft course documents
- by 31 October 2013: final course documents and accreditation submission.

TQA Support

The Office of the TQA can offer assistance in areas such as:

- communication (e.g. emails to TQA providers to give information on behalf of the writers)
- publication of draft documents on the TQA website (with comments to go to writers)
- clarification of Course Accreditation Criteria and feedback to writers on specific issues (such as degree to which criteria/standards comply with required characteristics)
- data (such as providers of the courses, number of qualifications issued)
- providing course document templates, models (e.g. similar criteria/standards from other courses)
- formatting of documents.

The Office of the TQA cannot offer assistance in areas such as:

- funding for relief, transport, food, meetings, accommodation etc associated with the course writing work
- payment for the work of writing the courses.

References

[*Advanced Electronics TQA 3*](#)

[*Electronics TQA 2*](#)

[Accreditation Guide for Developers of Senior Secondary Courses](#)

[Strategic Framework for TQA Accredited Senior Secondary Course Development](#)

[List of current accredited TQA senior secondary courses](#)

[Melbourne Declaration on Educational Goals for Young Australians](#)

ATTACHMENT C: ACCREDITATION SUBMISSION

Accreditation Submission

To the Tasmanian Qualifications Authority

Rosny College has been requested by the TQA to revise and submit Electronics Foundation TQA 2 for accreditation.

Rationale

This course has been developed to:

- replace the expiring Electronics TQA 2 course,
- prepare students who wish to study at in Electronics TQA 3 in the future,
- provide complementary learning for students undertaking study in areas such as electro-technology,
- provide a Year 11 and 12 pathway for secondary students who have studied the Australian Curriculum - Technologies context of engineering principles and systems

Consultation

The consultation for the development of the course included:

- Liaison with Gary Gorsuch (Launceston College) and Murray Jones (Newstead College) regarding the course content, criteria and general directions,
- General Comments draft was provided to all sectors via TQA's Recent Updates and Circulars to TQA Co-ordinators with comments to the writer closing on Friday 20 September, 2013, and liaised with other Electronics TQA 2 teachers,
- VET Certificate II in Electrotechnology (Career Start) teacher, Udo Westerneng, Launceston College
- Curriculum Teacher Leader – Technology, Department of Education, to develop assessment standards.

Issues from the consultation

The main concerns expressed during the consultation:

Optional topics – possibly add radio to this list and re-title section

The optional section could be re-titled *communication systems*, have radio added and allow for more contemporary topics such as digital, 555 timers and microcontrollers.

This would allow providers who do not have access to high frequency measuring tools such as 100 MHz oscilloscopes to participate in circuit construction and testing rather than to use a purely theoretical approach. Communication Systems could include other modes of transmission and reception including digital systems, AM systems (not available in all areas of Tasmania), FM, infra-red, ultrasonics, optical systems. This would also bring the subject into the 21st century as some of the older tele-communications technologies “disappear from the radar” and others become popular.

Clarity of the power supplies section

It may not reflect the current interest in power systems driven by solar panels and wind generators. It is unclear if this section refers to a complete and extensive ‘power supply’

project involving regulation and voltage selection rather than simple battery-voltage division which should be in Module 1.

Small solar panels as found in 'solar garden lights' could be examined as more contemporary topics.

Practical work for two areas:

ESSENTIAL ELECTRONICS KNOWLEDGE areas of

- Difference between analogue and digital signals
- Uses of Integrated Circuits in circuit design

have no associated project/labwork in the five modules unless the radio or amplifier is IC based and/or digital or defined in the other modules (>5). This could make it difficult to realise the course objectives fully. PICAXE studies would satisfy this need.

These suggestions were addressed in the revised course which is being submitted for accreditation including:

- changing compulsory module on Radio to being an optional module on communication systems,
- adding alternative voltage sources to power supplies,
- Addressing concern over coverage of IC's and digital/analogue signal differences.

Relationship with VET Certificate II in Electrotechnology (Career Start)

VET Certificate II in Electro-technology (Career Start) teacher, Udo Westerneng, Launceston College reviewed the course and found very little overlap in the content and criteria of the Electronics-Foundation (27/09/2013) and suggested that the Level 2 course complemented the VET course.

Accreditation

It is recommended that the course is accredited for a 5 year period with the opportunity to review the content and make minor changes at the end of the first year of implementation.

Charles Prevost (Course Writer)

Heather Whittington (Assistant Principal – Curriculum)

Rosny College

Date: 18 October, 2013

ATTACHMENT D: ANALYSIS OF PROPOSED COURSE DOCUMENT
TQA Senior Secondary Course Accreditation report

Course:	Electronics – Foundation, TQA level 2, size value = 15
Course Proponent:	Tasmanian Qualifications Authority (TQA)
Evaluation Officer(s):	XXX
Evaluation Date:	29 th October 2013

Accreditation History	The Electronics – Foundation course is a replacement course for Electronics ELT215109 that was accredited from 1 January 2009 until 31 December 2013.
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Evaluation History	
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<p>1. Rationale The proposed course has a clearly identifiable rationale which includes consideration of strategic need, demand, coherence and increasing student participation/achievement Including appropriate consultation with stakeholders.</p>	<p>The course document provides a Rationale that outlines the aims of the course and the targeted student. The Accreditation Submission outlines the rationale for such a course, including the need for, and possible pathways of, this foundation course.</p>
<p>2. Coherence 2.a General Coherence The proposed course</p> <ul style="list-style-type: none"> • must have educational aims and learning outcomes appropriate for students in the senior secondary phase of education in Tasmania; and • must be at least at the equivalent of the types of competencies characteristic of AQF Cert I; and • has a balance of learning of both domain-specific and generic skills and knowledge • meets the TQA’s specifications document (if applicable). 	<ul style="list-style-type: none"> • The aims, embedded in the Rationale, and Learning Outcomes are appropriate for students in the senior secondary phase of education in Tasmania. • The proposed course is at least equivalent to the level of the types of competencies of AQF Certificate 1. • The proposed course aims at developing generic skills of planning and organising to complete tasks, researching and reporting, and safety skills, alongside domain-specific skills and knowledge. • The proposed course mostly aligns with the TQA’s Course Template. <p>*Note:</p> <ul style="list-style-type: none"> - No reference is made to there being NO nationally developed statements that are relevant to this course - Access information is currently in the section

	<p>‘Pathways’</p> <ul style="list-style-type: none"> - A Work Requirement is embedded in the Course Delivery section (last sentence, p. 2). Gathering information under a sub-heading ‘Work Requirements’ would highlight this information - The stem to the list of Learning Outcomes is not standard - The font styles and sizes vary from the course template.
<p>2.b Internal Coherence</p> <ul style="list-style-type: none"> • Compulsory/Optional content and sequence of delivery - there is clarity regarding what content is compulsory, and what (if any) is optional. Language used reflects this (eg ‘must’ or ‘will’ <u>not</u> ‘should’ or ‘could’). - (if applicable) the degree of optional content (eg choice between units/topics) is limited. Options allow for some specialisation, but there is a significant ‘core’ of common content - there is clarity regarding the sequence for delivery of content (eg there are notations to say if the order in which contents is listed in the document reflects compulsory or suggested delivery sequencing) • there is a clear match between the stated Learning Outcomes and the Criteria/Standards, and between the Learning Outcomes, Content and Criteria/Standards. <p><i>Note: while some Learning Outcomes may be aspirational (non-assessed, eg ‘develop a positive attitude towards...’) the number of such objectives is limited. Overwhelmingly there is a clear match between the outcomes and the criteria/standards.</i></p>	<ul style="list-style-type: none"> • Course content that is compulsory or optional, and the sequence of delivery are all stated in the proposed course document. <p>* Note:</p> <ul style="list-style-type: none"> - The sequence of the information in section ‘Course Structure’ could be rearranged to make clearer the compulsory/optional topics. Currently this information follows the details of the course structure and would be clearer if it preceded the course structure table. (See Attachment 1 for a suggested rearrangement.) - It is not clear if a report is required should a learner elect to undertake an optional second project <ul style="list-style-type: none"> • There is mostly a clear match between the Learning Outcomes, Course Content and Criteria/Standards. <p>* The exceptions are:</p> <ul style="list-style-type: none"> - Safety/Hazards is compulsory core content and features in Criterion 1, but does not appear in the Learning Outcomes. ‘Safety’ could be incorporated into into the last Learning Outcome. - Correcting faults in circuits is part of the last Learning Outcome, however Criterion 1 standards only relate to identifying or locating faults.

<p>2.c Coherence with other courses</p> <ul style="list-style-type: none"> if applicable, there are clear linkages between a TQA 3 course and a ‘Foundation’ course at level 2 (or other specified TQA accredited pathway courses). <p><i>Note: a ‘Foundation’ course is not a simplified or ‘easier’ version of a TQA 3 course. It has its own distinctive features (content, standards, criteria etc) but prepares students who wish to study at TQA 3 in the same/ similar learning area.</i></p>	<ul style="list-style-type: none"> The proposed TQA level 2 course is an introductory course to Electronics, where the learner uses basic skills and knowledge of concepts to build and test circuits. This course is heavily weighted (75%) towards practical work. <p>The proposed Electronics TQA level 3 course is more rigorous academically than the proposed foundation course. This course includes most of the foundational material of the level 2 course and builds on those skills and knowledge in the compulsory topics, culminating in a more sophisticated construction project requiring a more rigorous report.</p> <p>The standards of equivalent elements of the proposed level 3 course are generally suitably higher than those of the proposed level 2 course for the same rating.</p>
<p>3. Overlap with other courses Does the proposed course duplicate, by titles or coverage</p> <ul style="list-style-type: none"> other TQA senior secondary accredited courses?; or nationally accredited VET courses? <p>Does the course document identify where any outcomes meet the requirements of VET units of competence in Training Packages to the extent that a learner may reasonably expect an RTO to grant direct recognition (RPL, credit transfer) for those units on the basis of successful achievement in the TQA accredited course.</p> <p><i>The Authority does not expect to accredit a course where almost all the outcomes (content and standards for assessment) align with those for VET Training Package units of competence except where the distinct nature and value of the course can be established on other grounds.</i></p>	<ul style="list-style-type: none"> The core skills and knowledge, and basic electricity and circuit knowledge, of the proposed course are also found in the content of the proposed Electronics TQA level 3 course. This is expected as it is foundational material required for extension in a higher-level course. There is no identified duplication with nationally accredited VET courses.
<p>4. Assessment</p> <ul style="list-style-type: none"> there is clarity regarding any prescribed assessment instruments and work 	<ul style="list-style-type: none"> The work requirement of a written report is in the section ‘Course Delivery’. Scant details are given. (See Attachment 1 for an alternative for providing this information in the document.)

<p>requirements</p> <ul style="list-style-type: none"> the standards are expressed in clear, unambiguous language (eg ‘sound understanding = C, good understanding = B’ lacks clarity. The standards must clearly describe features/ characteristics of the evidence of student work required by the standard). <i>Note: panel to check criteria and all standard elements against issues noted in Appendix F of the Course Writer’s Guide and make comments here</i> (if applicable) the standards are comparable with ACARA/ CCAFFL /VET standards in regard to their level of complexity and wording the degree of difficulty/ complexity of the standards and the range of criteria are comparable with those in accredited courses in the same/ similar learning area and level of complexity/size value <i>Note courses used for comparison and comments</i> 	<ul style="list-style-type: none"> The standards are mostly expressed in clear, unambiguous language, describing the characteristics of evidence required. <p>* Exceptions are: Criterion 1 and 7 headings: It is unclear how the terms ‘use’ and ‘apply’ differ.</p> <p>‘Uses and applies’ also appears in Criterion 7, first set of dot points, rating ‘A’.</p> <p>Criterion 1 ‘A’, <i>identifies faults and undertake some test procedures to attempt to locate them.</i></p> <p>* Note: Suggested amendments to wording that may better reflect standards are given in Attachment 2.</p> <p>N/A</p> <ul style="list-style-type: none"> The degree of difficulty of the standards and range of criteria are mostly equivalent to Workplace Maths, MTW215114, and Physical Sciences – Foundation, SPW215114. (See Attachment 2 for suggested amendments to standards.)
<p>5. Labelling and terminology The names used in courses and for results (awards) are simple, plain, readily understandable by practitioners and not mislead reasonable persons.</p> <p>Are the names used for awards/title consistent with current TQA practice?</p> <p>The language used to describe the course, assessment and standards is simple, plain and readily understandable by practitioners.</p> <p><i>Note: panel to check document against</i></p>	<p>Names for awards and the title are appropriate and consistent with current TQA practices.</p> <p>The language used in the proposed course is clear, simple and understandable.</p> <p>The language in the proposed course is inclusive and aligns with DoE ‘<i>Without Prejudice: Guidelines for Inclusive Language</i>’. The language used is ‘free from</p>

<p><i>DoE 'Without Prejudice: Guidelines for Inclusive Language' and note comments here</i></p>	<p>words, phrases or tones that promotes stereotypes, disadvantage or social barriers for particular people or groups'. (TQA Accreditation Guide for Development of Senior Secondary Courses, p32.)</p>
<p>6. Delivery The methods of delivering the proposed course are likely to achieve the purposes, aims and learning outcomes of the course.</p>	<p>The methods of delivery outlined in the section 'Course Delivery' are likely to achieve the purposed, aims and learning outcomes of the course.</p>
<p>7. Access Any limitations to access based on age, gender, employment, cultural, social or educational background are explicit, clearly stated and justified.</p>	<p>No section labelled 'Access' exists in the proposed course document, however information regarded recommended prior learning in Mathematics is given in the section 'Resources'.</p> <p>* It is suggested that this information is given in a section called 'Access'.</p>
<p>8. Quality Assurance The assessment processes to be used to determine whether a student has achieved the learning outcomes of the course are of standard sufficient to deliver</p> <ul style="list-style-type: none"> • a match between the standards for achievement specified in the course and the standards demonstrated by students; and • a level of comparability of results/awards essentially the same as for all other Authority accredited courses; and • community confidence in the integrity and meaning of results. 	<p>Mandated TQA statements with regard to quality assurance of TQA level 2 courses, is included in the proposed course document, p.10.</p> <p>The quality assurance processes described in the proposed course document outline the reason for, and types of actions by the TQA that will ensure a match between the standards of achievement specified and the standards demonstrated by students.</p>
<p>9. Resource Requirements</p> <ul style="list-style-type: none"> • What, if any, special requirements are there for providers of the course (eg special equipment, resources) • Are these clearly described? • What requirements are there for the TQA (eg assessment)? 	<p>The following information is given with regard to resource requirements:</p> <p><i>Access to equipment such as multimeters, oscilloscopes, breadboards, DC power supplies, and for circuit board manufacturing is necessary for this course. Access to signal generators and computers with circuit design software, while not necessary, is desirable.</i></p> <p>* It is suggested that the wording/punctuation be amended for clarity of information.</p>

<p>10. Evaluation The proposed course must identify</p> <ul style="list-style-type: none"> • course monitoring; and • evaluation processes. 	<p>TQA mandated ‘Course Evaluation’ statements are given on p. 16.</p>
<p>11. Size /Complexity</p> <ul style="list-style-type: none"> • Are the level of complexity and size value of the course clearly described? • Does the ‘amount’ of content/ assessment regime match the size value indicated? • Does the nature/aim/purpose of the course, its content, learning outcomes and assessment standards match the characteristics of the learning at this level of complexity? (see paragraph in course size and complexity section of the course document for these characteristics). 	<ul style="list-style-type: none"> • The proposed course document clearly states and defines the complexity level as TQA level 2. The size value is stated as 15, with no definition given. • The ‘amount’ of content and work required to address the TQA level 2 content, match a course of size 15 (150 hours). • The various elements of the proposed course match the characteristics of TQA level 2.
<p>12. Qualifications</p> <ul style="list-style-type: none"> • List the qualifications (including award types) to be conferred on successful completion of the course • Is this information included in the course documentation? 	<p>QUALIFICATIONS AVAILABLE Japanese –Foundation, TQA level 2(with the award of): EXCEPTIONAL ACHIEVEMENT HIGH ACHIEVEMENT COMMENDABLE ACHIEVEMENT SATISFACTORY ACHIEVEMENT PRELIMINARY ACHIEV</p> <p>EXCEPTIONAL ACHIEVEMENT (EA) 6 ‘A’ ratings, 1 ‘B’ ratings HIGH ACHIEVEMENT (HA) 3 ‘A’ ratings, 3 ‘B’ ratings, 1 ‘C’ rating COMMENDABLE ACHIEVEMENT (CA) 4 ‘B’ ratings, 2 ‘C’ ratings SATISFACTORY ACHIEVEMENT (SA) 6 ‘C’ ratings PRELIMINARY ACHIEVEMENT (PA) 4 ‘C’ ratings</p> <p>The algorithm is suitable for a course with seven criteria, two of which is generic.</p> <p>* However, this algorithm for an EA differs from TQA level 2 language courses, where the requirement is 5 ‘A’ ratings, 2 ‘B’ ratings.</p> <ul style="list-style-type: none"> • Qualifications are included in the course document.

Overall Observations	<p>The proposed foundation course in Electronics is a suitable course for students to learn the basic concepts of electricity and circuits largely in practical contexts. It provides a valid pathway to further study in Electronics at TQA level 3.</p> <p>The course document would benefit from some formatting refinement. For example, use of font to align with TQA specifications; pagination.</p> <p>This analysis includes some suggested considerations for amendments. (Refer to * in Accreditation Criteria 2.a, 2.b, 2.c, 4, 7, 9 and 12, Attachments 1 and 2.)</p>
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ATTACHMENT 1

(Text added to course text is in red)

COURSE STRUCTURE

The course consists of three (3) compulsory core areas of skills and knowledge in:

- Safety
- Simple circuit construction skills
- Essential electronics knowledge

applied to four (4) compulsory content modules:

- Basic Electricity and Circuits
- Transistors as Switches
- Transistors for Timing and Control
- Transistors as Amplifiers, and

a Construction Project.

Learners will study ALL four modules and one (1) construction project, **applying skills and knowledge from core areas.**

In addition to this, learners will complete either an:

- additional construction project, or
- optional unit of study on a circuit type of their choice or from a select range given by the teacher.

[Here insert the Flow Diagram outlining content areas.]

WORK REQUIREMENTS

It is recommended that the practical work **will** account for approximately 75% of the time allocated, with the remaining 25% dedicated to theory, researching, recording and reporting.

Practical work may include:

- experiments
- building circuits on breadboard or PCB
- projects.

Written work **MAY** include:

- assignments
- analysis of experiments
- assessment questions
- tests, **and**

MUST include the construction project report.

Construction projects must have a report detailing the construction and operation of the circuit built, including a research element.

It is recommended that the first construction project not be attempted until module 1 is completed, and that the modules are taught in the sequence listed above.

ATTACHMENT 2

Suggested amendments to reflect appropriate standard

Criterion 1, first set of dot points, rating 'B':

may be more appropriately written –

selects and uses, from a range of equipment and technologies, to.....'

Criterion 5:

- First set of dot points, ratings 'C' and 'B':
the standard at TQA level 2 may better be expressed as 'identify...' and 'lists' respectively.
- Second set of dot points, rating 'C':
use 'identify'.

Criterion 6:, first set of dot points:

<ul style="list-style-type: none"> • collects data to test circuits, and performs experiments using specified techniques in collecting and recording data 	<ul style="list-style-type: none"> • identifies the types of data required to test a circuit, and performs experiments using specified techniques in collecting and recording data 	<ul style="list-style-type: none"> • accurately identifies the types of data required to test a circuit, and performs experiments using appropriate selected techniques in collecting and recording data
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Criterion 7:

- Possible amendments to second set of dot points:

<ul style="list-style-type: none"> • performs accurate calculations to evaluate formulae. Sometimes uses correct units of measure 	<ul style="list-style-type: none"> • reliably calculates component values or physical quantities using identified mathematical formulae, and mostly using correct units of measure 	<ul style="list-style-type: none"> • reliably calculates component values or physical quantities using appropriate mathematical formulae, including correct usage of units Using correct units of measure
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- Possible amendments to third set of dot points:

<ul style="list-style-type: none"> • accurately reads and uses information from simple graphs and tables. 	<ul style="list-style-type: none"> • accurately reads, uses and creates identified mathematical tools to gather or display information. 	<ul style="list-style-type: none"> • accurately reads, uses and creates a range of graphs, tables and other mathematical tools to gather or display information.
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Typographical errors:

Criterion 1 first set of dot points, rating 'B': *identifies time, materials and equipment needed to complete a task, and devises a basic plan for completion*

Criterion 1 last set of dot points, ratings 'B': *identifies faults, and undertakes a given procedure to locate them*

'A': *identifies faults, and undertakes some test procedures to attempt to locate them.*

Criterion 3, first set of dot points, rating 'A': Font 9 instead of 10 - *identifies time, materials and equipment needed to complete a task, and devises a plan for completion*

Criterion 5, last dot point: *creates new circuits to perform a function similar to known circuits, and applies simple modifications where appropriate.*

ATTACHMENT E: PROPOSED COURSE DOCUMENT

- available at TQA website -