Standard (91xxx)	Question	Answers
91890	Can you use Design Thinking Methodology for the Inquiry Standard instead of for example the Agile process. Thinking in terms of more creative technology such as film, animation, web etc.	Just to clarify, using Agile or Design Thinking models are really good for the 2.8/3.8 or 2.2/3.2 standards. The "empathise, define, ideate" part of the Design Thinking model, could be a good basis for 2.1/3.1, but they are not required to actually to go to the "prototype" stage of design thinking (https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process). Kath Murdoch's inquiry cycle is also a good model: https://makinggoodhumans.wordpress.com/2015/05/14/inquiry-cycle-why-what-and-how/ However, your school may have an inquiry model that the students are familiar with and so that would be suitable/appropriate to use. The main difference is that they must propose a digital outcome as part of the inquiry process.
91890	How much evidence is required of the student's inquiry?	There is no set number of pages. However, an approximate guideline is 10-12 pages. 8 pages to show the research, defining their inquiry, references. 2 pages for their reflections/conclusions and 2 pages to cover the proposal of their outcome. The step up to M-E isn't more writing - just deeper thinking and insightful conclusions. However, this also could be evidenced in a blog, vlog, slideshows, etc.
91899	Can this report be done as a VLOG? aka video reflection/video file? and uploaded? Or is there a formal exam paper / template that is given out to students to work on in class? And, is the external on a topic that is set by the 'exam paper' or can it be a reflection on their year long personal project they have been working on in class if we are using a Project Based Learning approach? I have opted to have no externals due to it not linking to their project but it would be a game changer if this was a nice way to sum up their learning from their project for the year.	The CAT is a reflective summary of their project and is an external. However, it is a set paper where the students answer questions provided (so it is not able to be done in a VLOG - but would be a good idea for them to use to handle gaining evidence about their project). The assessment specifications can be found: https://www.nzqa.govt.nz/ncea/subjects/assessment-specifications/digitaltech-l2/
91897	It is interesting that the word Iterative is used in the subject title at Level 1 but the word advanced processes is used at 2.8 & complex processes 3.8 it would be nice to stay consistent with the word iterative as there seems to be confusion as to what Advanced and Complex processes when the standards seems to read that it is asking us to follow the iterative process and the assessment levels M & E require complex and advanced use of the iterative process? Can we please have some clarification on this? I also note there has been some discussion and questions posted on DTTA email list regarding this and teachers asking for information to clarify what this means.	The word iterative was dropped in the title, however the intent is that iterative is a given. The steps are in the use of project management and version control tools and techniques to have a more accepted a robust process.
91890	Should (or could) there be an outcome associated with this inquiry? (Web Design etc.)	The inquiry must lead to a proposal for digital outcome. Then you could use the 2.2/2.8 and/or an implement standard to actually assess the development of the outcome
91890	What does 'organising' info look like?	Look at the info sheet by National Library: https://natlib.govt.nz/system/resources/W1siZiIsIjIwMTcvMDMvMTQvMWR3dDNoaWdjeF9yZXNvdXJjZXNfZm9yX2lucXVpcnlfbGVhcm5pbmdfYV9ndWlkZS5wZGYiXV0/resources-for-inquiry-learning-a-guide.pdf It's about how students organise their inquiry thinking, readings and findings. Using appropriate tools to help them organise is useful: KWL Charts, Student Inquiry Organiser, Mind Mapping, etc.
91891	Step up to Excellence: Explain vs Justify - This seems like the excellence criteria will be met by the students with good communication skills?	Explain is descriptive. Explain can be answered by a list of bullets for example. Justify means that they can provide explicit evidence for their conclusions. So it is not just communication based - it means they have evidence from

		feedback, modelling or addressing relevant implications.
91896	What are the 'main' step-ups for 2.46?	the main step up is in the advanced programming techniques required that are listed in EN5. They have a range of advanced techniques that they can use and they are not all prescribed.
91894	At level 2, do they need to explain/cover the concepts given in the explanatory notes in 1.5?	Students need to explain relevant implications that may come from Explanatory Note 5 for Achieved, and address them at Merit. They also need to explain the interfaces and functions of components and systems. They are not required to repeat this at L2.
91894	How much explanation is needed to justify the choice of components when we provide the components?	Students should be able to make it clear to the assessor by describing in detail or revealing relevant facts/info. They should then give a reason so as to justify their choices. By justify they give a reason to support an argument/ give an explanation for something/ defend a point of view.
91890	What are the key difference between this and the next standard (develop a proposal 91891)	There are detailed explanations around inquiry in the webinar slides. It is significantly different as it focuses on a student led inquiry. More than just research into an outcome to be developed. https://www.dthm4kaiako.ac.nz/dtta/news/18/ncea-levels-2-and-3-digital-technologies-standards/
91894	Is it sufficient to say "I used a motor driver circuit" or do they need to describe how that subsystem works internally?	This depends on the outcome you are looking at. If you have a motor driver circuit as part of a more complex system, then the motor functionality is probably not the focus, however if you are developing an outcome where the motor driver is the key component of the system, then you would be looking for more clarity eg "explaining the interfaces and functions of components and systems"
91894	What's the best way for schools to start on this? We need a lot more help in teaching resources and funding for physical resources, schools aren't keen to fund this from the start of nothing	Level One resources are available and suggested units of work. Lending library for resources http://seniorsecondary.tki.org.nz/Technology/Digital-technologies https://seniorsecondary.tki.org.nz/Technology/Digital-technologies/Teaching-and-learning-programmes/Programme-6
91897	Section 3.5 what's meant by 'adjusting key actions and tasks where appropriate'	When the student is using a project management tool, they would adjust a task to be done based on testing and feedback or research, they may need to do further research, try a different method, or could add in another step or change how the outcome will work.
91894	What evidence of the electronics components needs to be shown, and what is the scope? Is showing appropriate use sufficient?	Evaluating the choice of components requires students to be able to make a decision. This means that students need to look at a range and make a choice. This means that very predetermined pure assembly based kitset electronic tasks cannot be used. Students do not have to have physical access to all components, they can investigate, evaluate and make a decision.
91898	When will we know the format of this - CAT or submission? What will be the question format? Will the questions vary much from year to year? Will there be resources from University of Auckland around this? Or somewhere else? How soon will we know answers to this so that we can teach it effectively?	This information is out already. Available at https://www.nzqa.govt.nz/ncea/subjects/digital-technologies/levels/ https://www.nzqa.govt.nz/ncea/subjects/digital-technologies/sample-resources/
91899	Will kids be able to do both externals and not be unfairly disadvantaged? Will they get 3 hours per external, or will they be made to do both standards in the same time that some students sit one?	Same as other learning areas. The externals are designed to take 1 hour to sit. You have a 3 hour slot. You can do 1 or 2 in that 3 hour slot. Other learning areas have 3 exams to do in that 3 hour slot. How many externals you wish to sit in that one-off 3 hour slot is up to you.
91891	What are conventions? How do I find them?	Examples in the EN 4 of 91891 - researching those key words will provide further details
91893	Would this happen during the 2.8 anyway? or is it just a one off cycle of creating a digital work and not the iteration part where you refine your work as you go? Could this be regarded as the first step in the iterative process? Or have I completely missed the purpose of the standard? Although I note in the notes that it does require testing? so how does it differ from the iterative process? I'm a little confused.	If using this with 2.8, then the development portion of the outcome would be parallel. However, 2.8 has more requirements such as decomposing the outcome into components, using project management and version control tools to manage the development.
91890	Excellence asks for an 'insightful conclusion', this is open to different interpretations can this please be explained further	Insight: "What have I learned about that I didn't know before this investigation?" Refer to the teaching and learning guide: http://seniorsecondary.tki.org.nz/Technology/Digital-technologies/Assessment#Level%202Insight

91897	what level of "discussion" is required for excellence?	Student translates, comprehends, or interprets information based on prior learning. Essentially this is a written outcome (but could be presented differently) where students are using their skill at reasoning, backed up by carefully selected evidence to make a case for and against an argument, or point out the advantages and disadvantages of a given context. They should remember to arrive at a conclusion.
91897	What constitutes "effectively" for Merit?	"effectivley use..." is explicit use of their management tools to develop and direct their outcome. For example, they have used project management tools to ensure they have met deadlines, get feedback, and they have used version control to ensure they can go back to previous versions if necessary.
91897	What is the diff between the proj mgmt. portion of DT2.8 and generic 2.2?	While they have similarities, there is a significant difference in the focus. Generic 2.2 has a larger focus on the selection of the project management tools. 2.8 looks at the decomposition of the outcome into components, using the information from testing and trialling, how the students are addressing relevant implications, and the focus on the development of a high quality outcome. 2.8 also looks at use of version control tools.
91897	What are teachers using for - proj mgmt. - version control	The go-to appears to be Git (for example https://education.github.com/ - free educational licence). Good naming conventions and on-going saving of overlapping versions could be an appropriate versioning convention although these can be harder to manage and assess by teachers. Student directed logs, spreadsheets etc. are alternative methods. Trello is an easy access free online project management tool. A recent thread on Mobilize has covered management tools that people are using https://nzacditt.mobilize.io/main/groups/4021/lounge/posts/297405
91897	Are issue logs/tracking and risk logs/tracking apt proj mgmt. tools? What is apt?	This is related to the previous question... The go-to appears to be Git (for example https://education.github.com/ - free educational licence). Good naming conventions and on-going saving of overlapping versions could be an appropriate versioning convention although these can be harder to manage and assess by teachers. Student directed logs, spreadsheets etc. are alternative methods. Trello is an easy access free online project management tool. A recent thread on Mobilize has covered management tools that people are using https://nzacditt.mobilize.io/main/groups/4021/lounge/posts/297405
91897	What level of coverage/depth is req'd for -proj mgmt. - decomposing - trialling - testing - implications at A/M/E	Refer to the MoE teaching and learning guide http://seniorsecondary.tki.org.nz/Technology/Digital-technologies/Assessment#Level%202
91898	With BYOD schools how can we run CATs?	As you would on school computers. They need to be directly supervised, they can bring info in for one and not the other. Please read https://www.nzqa.govt.nz/assets/qualifications-and-standards/qualifications/ncea/NCEA-subject-resources/Digital-Technologies/DTHM-CAT-Administration-Instructions.pdf
91899	91899 Summary CAT: Students can bring their outcome to the CAT. If thety have a software outcome their code may include a lot of documentation of their process (modification comments, etc). If they've produced an electronics outcome, how can they bring an equivalent level of documentary support into the CAT?	Ensure candidates for 91899 and 91909 can access their digital outcomes. Students wishing to sit this standard should prepare to write a reflective report. They just need to bring in photos etc to support their answers.
91908	Will there be one area of Computer Science decided for the CAT or can students choose from the listed areas at level 2 and 3?	This is still not determined. 2019 will have all areas available. It is proposed that there will then be a specified set of topics that will be available in the following year (from the list).
91896	non trivial? non core?	Trivial may include string manipulations such string length, count or sort. Non-trivial are more complex manipulations such as extracting specific characters, concatenations, or combining several processes together. Non-core libraries include libraries that are not standard within the standard install of the programming language, ie. OpenCV in Python.

		Are the "implications" listed for merit (that they must analyse the impact for their proposed outcome) the same/similar to the overarching "relevant implications"	The specific standard for this question has not been included, but I assume one of the implementation standards. Implications can always include the implications mentioned in the descriptive notes of each standard, although there could be others highlighted by the student. Implications must always reflect the implications that are relevant to the student's specific outcome. The step-up is the difference between explaining which implication are relevant, compared with how they have addressed their identified implications.
		Would you suggest that "advanced processes (2.8)" fits well with 2.2-develop a design. Ie. Should a student "plan" their design AND development under the umbrella of advanced processes or should the advanced processes be kept to the "building" of an outcome that has already been designed.	Advanced processes can easily be paired with 2.2 and another implement standard. So the developing of the concept and the implementation of the outcome are managed through the advanced processes. There is scope for them to fit well together, but they don't have to be done together. The wording of the step-ups were design to be similar to allow for larger project based tasks if your course design is around project based learning and assessment.
		L2 Database- Excellence requires "iterative improvement"- some clarification please? If you have designed the database well that meets the specs of the project, there should be no room for iterative improvement? This point might make kids "under-design" the first database so they can show iterative improvement.	The iterative development standard is a means to test and develop leading to an outcome: a place to try new models, techniques and develop potential methods leading to an outcome. The reference to iteration within the implement standards is about improving the specific implementation of a specific outcome. The task would have to be of sufficient rigour to allow the students scope for improvement. They are improving not only the database structure, but also the forms, the presentation of the data, the usability and functionality and other relevant implications such as privacy. There are a whole range of items that can be improved iteratively.
	91891	Do you also have to justify how they used appropriate conventions or just show they have used them.	For excellence they have to justify their design conventions, however this can be in the form of annotations on the conceptual design.