INTRODUCTION

Technology is an inspiring, rigorous and practical subject applying creativity and imagination. It draws on disciplines such as mathematics, science, engineering, computing, design and art. You will learn how to take risks, become resourceful, innovative and capable citizens and develop a critical understanding of technology's impact on daily life and the wider world. These are essential skills and attributes for a wide range of career pathways both at trade and professional levels as well as for engaging and satisfying hobbies and DIY.

SKILLS

This course provides basic thinking and practical skills in preparation for Year 11 NCEA Level 1 including:

- Technological practice. *: (ie. Identifying a need or opportunity, developing a brief, designing a solution, testing evaluating and justifying, & communicating intent.*
- Developing a knowledge of the principles & processes of technology*. (ie. safety, tools & equipment including* CAD/CAM.*(ie.Computer Aided Design & Manufacture)*
- Working to agreed specifications and quality standards.
- Appropriate selection and use of materials.
- Expressing design ideas creatively using ICT and conventional media.

ACTIVITIES.

The assessment will consist of two skills based projects and an extended design and make project.

FUTURE PATHWAYS:

Please look at the Construction & Infrastructure, Manufacturing and Creative strands of the "Vocational Pathways". Refer http://youthguarantee.net.nz. For more information.

This year 10 course prepares students for Year 11 Technology NCEA in **Either:**

(These courses complement each other - students often choose both)

- Generic technology (in resistant materials) using Achievement Standards aimed ultimately at professional careers through critical thinking and communicating.

- Pre-trade in either construction (woodwork) or engineering (metalwork) using **Unit Standards** and focusing mainly on practical skills. These are written and directed by the relevant Industry Training Organisations (ITOs). ***Not recognised for endorsement or UE.***

ASSESSMENT

Internal assessment in the above areas.

Students will be engaged in a number of practice exercises before any assessment takes place.

Key assessments will be undertaken with written feedback and an opportunity to refine work will be provided before a final (summative) assessment takes place.

COST

A course fee of $150 will be levied to cover the cost of materials, wastage and consumables for the three take-home items. Further recoveries or rebates will be processed in November depending on the design of the projects.

931/921 11 MTM / MTW — GENERIC TECHNOLOGY

RECOMMENDED LEVEL OF ATTAINMENT

Entry is open but as this is a literacy rich subject students should ideally demonstrate satisfactory completion of Year 10 MTM, MTW or DVC course or at least have achieved average marks from Year 10 English.

Students should be aiming at least at merit and excellence. We may direct some students to pre-trade courses TPM (metal) TPW (wood) which focus more on practical tool skills. These courses greatly complement generic technology and some students choose both pathways.

INTRODUCTION

Students can choose either a woodwork or an engineering course; the same Standards are assessed in each. Generic Technology is intended to develop "Engineering habits of Mind" (mind, heart and hand) which can be applied across a range of Technology contexts such as Civil, Mechanical and Computer, Engineering and Food and Bio technologies.

Emphasis is placed on the principles of technological practice in resolving a given issue through research, critical analysis, idea exploration, planning, testing, consulting and communicating of their ideas within communities.

Students have a wide choice over their solution within the given context provided they can research widely and justify their decision. *Royal Academy of Engineering report 2014 "thinking like an engineer"

More information on the NZ Technology curriculum can be found on www.tki.org.nz – (go to:learning areas – technology)

CONTENT AND SKILLS

Achievement Standards.

- Identify a need within the given issue
- Develop a brief through research and stakeholder consultation which fully addresses that issue
- Plan, design, develop and present a conceptual solution which addresses the brief.
- Implement a quality final outcome / solution and prove that it effectively addresses the issue and the brief

Students will attend a four-day full-time course at an outside provider (SIT) to develop MIG welding skills.

ENDORSEMENT

Attainment of AS 1.5 (91048) is mandatory for subject endorsement as part of at least 14 credits at Merit or Excellence.

All AS Standards count toward NCEA Certificate endorsement. (overall 50 credits required at Merit or Excellence).

FUTURE PATHWAYS

This is the first of a three-year pathway intended for students aspiring eventually (from year 13) to degree level careers in the Construction and Infrastructure, Manufacturing and Creative strands of the Vocational Pathways.

Please refer to Vocational Pathways at http://youthguarantee.net.nz. for more information.

Students with these aspirations should also be studying physics and calculus.

COSTS

$100 – $200 depending on design

A $150 deposit will be invoiced in March to allow prepurchasing of materials, the balance will be invoiced (or credited) in the following November

NCEA STANDARDS – 11MTM/MTW

Not all standards will necessarily be assessed.

	Level	Credits	L1 Lit.	L1 Num.	
External					
91048 v4	1	4	yes	no	Generic Technology 1.5 - Demonstrate understanding of how technological modelling supports decision-making
91049 v4	1	4	yes	no	Generic Technology 1.6 - Demonstrate understanding of how materials enable technological products to function
Internal					
21683 v2	3	2	no	no	Demonstrate knowledge of MIG welding in the motor industry
21684 v2	3	3	no	no	Use a MIG welding plant in the motor industry
91044 v3	1	4	yes	no	Generic Technology 1.1 - Undertake brief development to address a need or opportunity
91046 v3	1	6	no	no	Generic Technology 1.3 - Use design ideas to produce a conceptual design for an outcome to address a brief
91047 v4	1	6	no	no	Generic Technology 1.4 - Undertake development to make a prototype to address a brief
91057 v4	1	6	no	no	Construction and Mechanical Technologies 1.20 - Implement basic proce

RECOMMENDED LEVEL OF ATTAINMENT

It is unlikely that students who did not gain at least 14 credits from Level 1 Generic Technology (11MTM/MTW) would succeed in this course.

Able students who wish to transfer from Year 11 pre-trade courses (11TPM/TPW) and who can demonstrate good literacy capabilities may be considered at HOD discretion based on an appropriate report history from Level 1.

INTRODUCTION

Many of the problems the world faces today will eventually be solved with technological solutions which do not yet exist.

This course builds on an understanding of Engineering Habits of Mind [1] (mind, heart, hand) from Level 1 and is intended for students who aspire to go into professional engineering,(civil / mechanical) architecture and design careers who should also be studying physics and/or calculus.

[1] *Royal Academy of Engineering report 2014 "thinking like an engineer". More information on the NZ Technology curriculum can be found on www.tki.org.nz – (go to: learning areas – technology)*

Students have a wide choice over their solution and the materials used, provided that they can research widely and justify their decisions.

More information on the NZ Technology Curriculum can be found on www.tki.org.nz (go to: learning areas – technology)

To be able graduate to Level 3 a minimum of 10 achievement standards credits will be required.

Note: It must be made clear that a practical outcome alone would not accrue any credits in this course

RECOGNITION AND ENDORSEMENTS

All AS credits gained count toward University Entrance (14 from 3 subjects)

AS 2.5 (91358) counts toward literacy requirements.

Attainment of AS 2.5 (91358) is mandatory for course endorsement as part of at least 14 credits at Merit or Excellence.

All AS standards count toward NCEA certificate endorsement. (overall 50 credits required at Merit or Excellence.)

All credits gained count toward Construction and Infrastructure and Manufacturing and Technology Vocational Pathways.

FUTURE PATHWAYS

This is the second of a three-year pathway intended for students aspiring eventually to degree level careers in the Construction and Infrastructure, Manufacturing and Creative strands of the Vocational Pathways. Please refer to Vocational Pathways at http://youthguarantee.net.nz. for more information.

Students with these aspirations should also be studying physics and calculus.

COSTS

A $150 deposit will be invoiced in March to allow prepurchasing of materials, the balance will be invoiced (or credited) in the following November.

NCEA STANDARDS – 12TAS

Not all standards will necessarily be assessed.

	Level	Credits	UE Rdg.	UE Wrtg.	
External					
91358 v3	2	4	no	no	Generic Technology 2.5 - Demonstrate understanding of how technological modelling supports risk management
Internal					
91344 v4	2	6	no	no	Construction and Mechanical Technologies 2.20 - Implement advanced procedures using resistant materials to make a specified product with special features
91354 v3	2	4	no	no	Generic Technology 2.1 - Undertake brief development to address an issue
91356 v3	2	6	no	no	Generic Technology 2.3 - Develop a conceptual design for an outcome

RECOMMENDED LEVEL OF ATTAINMENT

It is unlikely that students who have not gained a minimum of at least 14 credits from Level 2 Generic Technology (12TAS) would succeed in this course. Depending on class size, these students may be timetabled together with our 12TAS course.

INTRODUCTION

This course builds on an understanding of "Engineering Habits of Mind" from Levels 1 & 2 and is intended for students who aspire to professional engineering,(civil/ mechanical) architecture and design careers who should also be studying physics and/or calculus.
Students identify a community context to explore and then resolve an issue within that context by engaging in research, consultation, testing and modelling, idea development, planning and implementation of the final design. More information can be found at: www.tki.org.nz – (go to:learning areas – technology).
Note: It must be made clear that a practical outcome alone would not accrue any credits in this course

RECOGNITION AND ENDORSEMENTS

All AS Credits gained count toward University Entrance (14 from 3 subjects)
AS 3.5 (91358) counts 4 credits toward UE literacy requirements (10 credits required).
Attainment of AS 3.5 (91612) is mandatory for course endorsement as part of at least 14 credits at Merit or Exellence.
Credits gained in AS 3.5 also count toward NCEA literacy.
An opportunity is available to students who demonstrate comprehensive knowledge and skills in the evidence described to present their portfolio of work for external moderation for the New Zealand Scholarship qualification.

FUTURE PATHWAYS

This is the last of a three-year pathway intended for students aspiring eventually (from year 13) to degree level careers in the Construction and Infrastructure, Manufacturing and Creative strands of the Vocational Pathways at QNF Levels 6 & 7.
Please refer to Vocational Pathways at http://youthguarantee.net.nz. for more information.

COSTS

$100—$300 depending on the design of the outcome. A $150 deposit will be invoiced in March to allow prepurchasing of materials, the balance will be invoiced (or credited) in the following November.

NCEA STANDARDS – 13TAS

Not all standards will necessarily be assessed.

	Level	Credits	UE Rdg.	UE Wrtg.	
External					
91612 v3	3	4	no	yes	Generic Technology 3.5 - Demonstrate understanding of how technological modelling supports technological development and implementation
Internal					
91608 v3	3	4	no	no	Generic Technology 3.1 - Undertake brief development to address an issue within a determined context
91610 v3	3	6	no	no	Generic Technology 3.3 - Develop a conceptual design considering fitness for purpose in the broadest sense
91620 v3	3	6	no	no	Construction and Mechanical Technologies 3.20 - Implement complex procedures to integrate parts using resistant materials to make a specified product