

## INVITATION

### Subjects in the Technology Learning Area in Years 11-13

Technology as a learning area aims to give students a broad-based technological literacy by the end of Year 10 that includes sufficient independent learning skills that they can retain that literacy through their adult life. Students should and generally do encounter a range of technologies from a number of technology based domains.

In Years 11-13 schools are free to offer subjects within the broad umbrella of the technology learning area. The Ministry of Education has provided generic technology education resources, but a range of secular interests with concerns about progression to tertiary study and employment have also provided resources and promoted them. The result is a confused plethora that is not meeting the needs of employers, students or schools, or indeed in keeping with the intent of the technology curriculum.

There is a need to define and have accepted by all key stakeholders, clear articulated subjects of technology.

Key stakeholders in the engineering profession have formed a cooperative project with the aim of resolving this issue. The first stage of the project is to obtain agreement on a set of subjects that might be offered nationally within the technology learning area in Years 11 to 13 to meet the needs of all major stakeholders including:

- University and ITP Faculties/Departments in relevant disciplines – ICT, engineering, food technology, architecture, industrial design, agriculture and horticulture etc.
- Relevant ITOs in these disciplines
- Relevant professional bodies, industry associations and other membership-based bodies.

**Attached to this invitation is a starting proposition to initiate discussion at two key stakeholder meetings:**

13 May 2009 9.00am – 12 noon University of Auckland, School of Engineering  
Conference Room, Auckland

14 May 2009 1.00pm – 4.00pm IPENZ, 158 The Terrace, Wellington

**This is an open invitation to any organisation which has an interest in this matter to send representatives.**

**Attendees need to be registered by Friday 8 May with the Project Coordinator (sharon.wagg@weltec.ac.nz).**

## NOTES

### Consultation Meetings 13-14 May 2009

#### Subjects in the Technology Learning Area in Years 11-13

##### PURPOSE

To obtain agreement on a set of subjects that might be offered nationally within the technology learning area in Years 11 to 13 to meet the needs of all major external stakeholders.

##### KEY STAKEHOLDERS

###### External to Schools

University and ITP Faculties/Departments in relevant disciplines – ICT, engineering, food technology, architecture, industrial design, agriculture and horticulture etc.

Relevant ITOs in these disciplines

Relevant professional bodies, industry associations and other membership-based bodies.

###### Schools

School Principals and Boards of Trustees

Heads of Department of Technology

Teacher Associations

##### SITUATION ANALYSIS

- Technology as a learning area has been undergoing steady and important improvement since its introduction in the 1990s as a replacement for techni-crafts and a consolidation of technology related aspects touched on in other learning areas such as science and social science. It aims to give students a broad-based technological literacy by the end of Year 10 that includes sufficient independent learning skills that they can retain that literacy through their adult life. Students should and generally do encounter a range of technologies from a number of technology based domains.
- In Years 11-13 schools are free to offer subjects within the broad umbrella of the technology learning area. The Ministry has provided generic technology education resources, but a range of secular interests with concerns about progression to tertiary study and employment have also provided resources and promoted them. The result is a confused plethora that is not meeting the needs of employers, students or schools, or indeed in keeping with the intent of the technology curriculum.
- The previous technology curriculum (1995) defined seven technological areas in which technological learning outcomes could be met. In some instances however, these have been treated as 'the subjects' of technology. This has been unhelpful for developing technological literacy and they are uneven in size and importance across schools. A number of ITOs have also provided focused subject materials and related assessments.
- Schools have generally adapted their resources into three types of specialised classrooms – dry materials lab, wet materials lab and computer/design lab
- Many lobbyists are at work promoting specific subjects in the technology context, but without seeking a universal and coherent solution for the learning area
- The tertiary sector, confused by the above, often ignore technology as a platform for supporting tertiary study

##### THE NEED FOR SUBJECTS IN TECHNOLOGY

There is a need to define and have accepted by all key stakeholders, clear articulated subjects of technology. These should:

- Be relatively few in number – other learning areas find 3-4 subjects is sufficient – a small number of subjects will:

- Support good educational pedagogy – secondary education is not narrowly-focused training
- Support rational and practical use of resources by schools
- Enable preparation of good quality teaching materials
- Provide clear pathways to tertiary study at all entry levels from trades certificates (typically Levels 2-4) to Level 8 degrees
- Cover reasonably coherent domains of learning (but noting that technology is multi-disciplinary some overlap should still occur)
- Use generic technology achievement standards (as based on the 2007 technology curriculum achievement objectives) for about half their assessment, with the other half of the assessment being specific to the subject
- Cater for both skill and knowledge development in the subject, acknowledging the diversity of entry levels of the tertiary study to which students will progress

#### **A POSSIBLE MODEL**

- Given the diversity of career pathways (including such things as agricultural/horticulture, food and biotechnology, chemical and process engineering, mechanical and civil engineering and associated trades, information, communication and electrical technologies, architecture, industrial design) a broad inclusive approach is required
- The smallest number of subjects that would cater for all the above, appears to be four:
  - One focused around process technologies (including food technology, biotechnology, chemical technology)
  - One focused around structures and mechanics (including textiles, product development using resistant materials)
  - One focused around information, communication and electrical/electronic technologies (including computing, digital media, robotics)
  - One focused around design and graphics/visual communications.
- Students might then take one or two such subjects, and by appropriate provision of standards, the needs of students with different tertiary education needs (from trades to degree) can be provided in each subject

#### **DEVELOPING A CONSENSUS**

- This needs to be buy-in from the external stakeholders, and then a second stage of engagement with the schools and teachers.

#### **IMPLEMENTATION**

- Once consensus has been reached on subject domains, the Ministry of Education can proceed to develop the necessary teaching and learning guides and additional subject specific achievement standards, as well as undertake professional development for implementation commencing at Year 11 in the 2011 school year.