Alexander Stewart discusses the Technological and Applied Studies (TAS) courses in Years 7 - 12 and brings teachers up to date on the changes and issues involved…

Between 2019 and 2020 Technological and Applied Studies (TAS) teachers in NSW have begun implementing eight new syllabuses which is the most significant release of new syllabuses in NSW since 1999. These new syllabuses include advanced technologies and Australian Curriculum content resulting in the need for TAS teachers to develop new programs, scope and sequences, assessment strategies, and to update their resources.

Technology Mandatory Years 7-8 Syllabus

The new *Technology Mandatory Years 7- 8 Syllabus (2017)* was implemented with Year 7 in 2019. In 2020 it will also be delivered to Year 8. This new syllabus has seen a significant change to Technology Mandatory content delivery in schools. The content has been adapted from the Australian Curriculum and includes the context areas of Agriculture and Food Technologies, Digital Technologies, Engineered Systems and Materials Technologies.

The introduction of computer programming (or coding) in Digital Technologies, using a general purpose programming language, has been a focus of the media and teacher professional learning. There is some concern the Digital Technologies' outcome related to data, its representation and transmission has been overlooked in the noise about coding.

Many schools have used the new syllabus as an opportunity to refine their existing teaching and learning practices or to introduce wholescale change. The digital technologies content is the most significant change to this syllabus and requires almost all TAS teachers to undertake professional learning to adequately cover the outcomes and content. TAS teachers do need to be conscious of the fact that it is only being taught to Stage 4 level and not to Stage 6.

Years 7-10 Technology Syllabuses

In 2020 TAS teachers have begun implementing revised Years 7-10 Technologies syllabuses including Agricultural Technology, Design and Technology, Food Technology, Graphics Technology, Industrial Technology, Marine and Aquaculture Technology, and Textiles Technology.

All syllabuses include updated content and examples, of which many include advanced and emerging technologies. The Life Skills content in each syllabus has been aligned to the regular course content and the related Life Skills outcomes are included with the Stage 4/5 content to reinforce this alignment. The representation of Aboriginal and Torres Strait Islander Histories and Cultures has been strengthened in each syllabus and an interactive glossary has been provided to clarify key terms.

The key changes for each syllabus are outlined below:

Agricultural Technology	The Agricultural Technology syllabus content has been restructured to provide greater clarity for teachers. The syllabus retains the Core A and Core B structure The topics of Introduction to Agriculture and Agricultural Systems and Management, however, have been added respectively. The outcomes have been amended to allow schools the flexibility to deliver either Plant or Animal Enterprises in Core B.
Design and Technology	This syllabus has been amended to provide greater alignment with the new Technology Mandatory Years 7-8 course. The context areas now include Agriculture, Digital Technologies, Engineered Systems, Food Technology, Information and Communication Technology, and Materials Technology. The content has generally remained unchanged in the syllabus revision. Students undertaking the 100-hour course are required to complete a minimum of 2 context areas and 2 -4 units of work. Students undertaking the 200-hour course are required to complete a minimum of 3 context areas and 4-8 units of work.
Food Technology	This syllabus has been restructured to remove the core topics from both the 100-hour and 200-hour courses to provide schools with greater flexibility when delivering to vertically streamed classes. As a result, the number of focus areas to be studied has been increased to 3-4 in the 100-hour course and 6-8 in the 200-hour course.
Graphics Technology	In this syllabus some option modules have been removed to reflect changes in graphics technology. In the 100-hour course students are now required to study both core modules of Computer Assisted Design (CAD) and Instrument Drawing, and 1-2 option modules. In the 200-hour course students now study a total of 4-6 option modules in addition to the core modules.
Industrial Technology	Of all the Technology syllabuses, this syllabus had the most significant changes to the outcomes, content and module structure. Wherever possible the 50-hour modules have been combined into 100-hour modules to simplify course programming. The number of focus areas have also been reduced from 11 to 8 by removing Ceramics, Leatherwork and Polymers. The remaining focus areas have been updated to include contemporary content with examples that include advanced technologies. Students are still permitted to study two focus areas for the award of their RoSA. More focus areas may be studied if school resources and timetables allow, but only two focus areas can count toward a student's RoSA.
Marine and Aquaculture Technology	This Content Endorsed Course has been updated to include contemporary content and examples. The structure of the course is unchanged.
Textiles Technology	This course has been updated to include contemporary content and examples. The structure of the course is unchanged.

Years 11-12 Technology Syllabuses

Assessment and Reporting

NESA has updated the Assessment and Reporting documentation for the three courses that involve production of a major project: Design & Technology, Industrial Technology and Textiles & Design. Advice on managing project work is now included for teachers who are teaching students with disability. The assessment and reporting documents can be found on each Stage 6 Syllabus homepage on the NESA website.

HSC Marking

Several TAS courses have experienced difficulties filling HSC marking positions. TAS Teachers are encouraged to apply to mark both written and practical HSC examinations. The professional learning from HSC marking a subject you have been teaching to Stage 6 is invaluable for improving your content knowledge. If you haven't been HSC marking the 'Meet the Marker' sessions NESA offers for teachers to learn about HSC marking processes are worthwhile.

In 2020, NESA workshops have been organised (See End note[i] for more details.)

SHAPE

The SHAPE exhibition features a selection of exemplary Major Projects from HSC Design and Technology, Industrial Technology and Textiles and Design students from the 2019 Higher School Certificate examinations. (See Endnote[ii] for details of the exhibition)

TAS Teacher Shortage

Many TAS faculties across NSW are struggling to find teachers to fill permanent, temporary or casual vacancies, with many schools no longer offering one or more TAS subjects due to a lack of qualified TAS teacher. One way to help alleviate this issue in the medium term is to promote TAS teaching as a career path to your students. The following universities offer courses that will accredit teachers to teach Technology subjects:

- Australian Catholic University

- Charles Sturt University

- Southern Cross University

- University of Newcastle

- University Of NSW (Art & Design)

Additionally the NSWTF Industrial Arts Special Interest Group (IASIG) has been campaigning about this issue and plans to continue this campaign in 2020.[iii]

Syllabus Implementation Support

The DoE through the TAS curriculum website[iv] and various yammer groups has been progressively uploading resources to assist teachers in implementing these revised syllabuses. Teacher associations, private providers and other teacher networks have been providing professional learning, support and resources to help implement these syllabuses. The NSW Teachers Federation's CPL is also providing a professional learning course covering most TAS courses on 30 March.

In 2020 there is a lot of revision, updating and opportunity to develop strong teaching programs with teaching resources reflecting contemporary technologies and teaching practices in our schools.

References and EndNotes:

[i] **HSC workshops** In 2020, the following workshops have been organised (with registration link below):

Design & Technology:

21 March - Tamworth, 23 May - Port Macquarie, 19 September - Rosehill

Industrial Technology:

4 April - Coffs Harbour, 2 May - Wagga Wagga,

https://www.educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/how-accreditation-works/teacher-accreditation-information-sessions

[ii] *SHAPE exhibition* - The SHAPE 2019 exhibition opens at the Powerhouse Museum, Museum of Applied Arts and Sciences on 29 February 2020 and closes on 3 May 2020

SHAPE 2019 will travel to the Glasshouse Gallery in Port Macquarie in 2020. There will be a student workshop on Friday 22 May 2020, with a Design and Technology professional learning session for teachers on Saturday 23 May 2020.

https://www.educationstandards.nsw.edu.au/wps/portal/nesa/about/events/hsc-showcases-and-events

[iii] For more details about the IASIG check the NSW Teachers Federation's website. This Special Interest Group meets once a term in Federation House, Surry Hills and members can join a meeting via video conferencing. If interested contact the Federation's Wagga Wagga office to speak to the officer in charge of the SIG.

[iv] https://education.nsw.gov.au/teaching-and-learning/curriculum/key-learning-areas/tas

From 2020 Alex Stewart has been appointed as Head Teacher TAS at Pendle Hill High School. Previously he has been a Senior Curriculum Officer with NESA and before that worked for nine years as Head Teacher TAS/VET at Carlingford High School. He has been a HSC practical marker for Industrial Technology since 2012. In 2019 Alex presented for SHAPE hosted by the Museum of Applied Arts and Sciences on Industrial Technology Major Projects and co-hosted a live video conference for regional and remote students. He has taught a range of TAS courses with a passion for Industrial Technology – Electronics, Graphics and Timber.