ACT Government High Schools (Years 7 to 10) operate under a model of school based curriculum development with courses accredited through the cyclical (presently five yearly) School Review Process. Most offer students a mix of core and elective units with the standard theme of fluency in basic applications through use of integrated projects in a process oriented curriculum approach. To the extent that standardisation exists, it is provided through the curriculum frameworks documentation, specifically Technology - A Curriculum Profile for Australian Schools authored by the Curriculum Corporation. This sets out four strands (outcomes) with a series of organisers and level statements describing student performance in terms of outcomes, pointers and annotated work samples for each of eight levels covering Years 1 to 10 of schooling.

A significant impetus has resulted from introduction in 2000 of a Year 10 ICT (Information and Communication Technologies) Competencies Certificate to complement the standard ACT Year 10 Certificate. ICT Competencies in 2000 and 2001 are assessed as satisfactory or unsatisfactory but are subsequently intended to be graded at three levels of accomplishment. There is an expectation that the targeted skills will be implemented and observed across several Key Learning Areas.

Competency 1:
Accessing Information Processes and Tools
- use an on-line catalogue
- use keyword search strategies
- use a browser and a search engine
- use the information literacy process

Competency 2:
Communication & Collaboration Processes & Tools
- use electronic mail
- participate in a collaborative project
- use different media to collect information

Competency 3:
Organisational Processes and Tools
- use a word processing application
- use a spreadsheet application
- use a database application
- use the features of a network

Competency 4:
Authoring Processes and Tools
- publish an original piece of work
- comply with copyright conventions

Competency 5:
Presentation & Visual Display Processes & Tools
- develop and deliver a presentation
- develop and produce a display

Adoption of ICT in this way is fostering interactive, student focused approaches; facilitating research of up-to-date issues; encouraging an integrated component to curriculum delivery; and supporting the concept of a global classroom to broaden experiences and perspectives. Critical to successful adoption of ICT is functioning infrastructure and the school based expertise to manage it effectively. Equally essential are teachers who are accepting of a facilitator aspect to their role and risk takers in terms...
of translating personal computing skills into effective design and delivery of meaningful assessment tasks. These factors implicate adequate provision (quantity and quality) of resources equitably accessed together with appropriate scaffolding structures (professional development etc.) to support teachers as they move from established comfort zones in their KLAs to accept the challenges of pedagogical change. ICT provides a unifying tool for integrated learning but a culture shift is needed for this to be as effective as is desirable.

An associated initiative currently focused in the high school sector has furthered fostered successful adoption of ICT Competencies. The Quality Teaching Program with its Curriculum Integration Model focus in the ACT provides a means of accessing funding and time release for teachers to develop their own curriculum materials to apply ICT as a tool for improved student learning outcomes. In 2000 each high school was resourced for a team (approximately five teachers) to create ICT based educational resources integrating cross curricular perspectives and KLA themes for implementation and refinement at the local school level. Team members have access to specialist ICT coaches and hardware / software with one designated outcome of involvement being that it is a train the trainer concept on return to the base school. There will be continued (but lesser) resourcing to support continuation in 2001 in the high school sector with extension to other sectors and special interest groups eg. indigenous education. Samples of the bank of resultant resources can be viewed at the following website - http://www.occ.act.edu.au/home/cim/school.htm and include materials as diverse as a virtual library, topical webquests, interactive worksheets, scaffolding structures for research tasks and drug education activities.

### COLLEGES SECTOR

**FOCUS ISSUE - Accredited / Tertiary Courses**

As with the high schools, curriculum development and assessment are school based in the college sector. In curriculum terms most ACT Colleges (Years 11 and 12) offer two courses in the ICT area, namely Accredited (non-tertiary) and Tertiary. Accredited courses offered generally comprise a number of non-sequential units of a term or semester duration, with content and strategies being similar in most colleges. The purpose is to build student confidence and competence in applications such as word processing, spreadsheets, databases, desktop publishing and graphics. Students may undertake as many units as desired however to complete a course they must be assessed in the equivalent of one year’s study for a minor and at least 1.75 years for a major.

The Tertiary IT course is a system wide course (ie. all colleges have chosen to offer the same course) although there is flexibility in the way it is offered in different colleges. The target audience is those students intending tertiary study that may or may not be IT focused. Assessment is continuous and college based with students receiving a result on the "A" to "E" scale as well as a unit score that can contribute to a student's tertiary entrance score. The current course is accredited by the Board of Senior Secondary Studies (BSSS) to the end of 2002 and comprises in excess of twenty five term length units, some with pre-requisites. The course also has vocational accreditation with students able to attain an IT AQF Certificate Level II (User Support) by satisfactorily completing a prescribed package of units over one year. The following is a complete list of units available in the course although not all colleges offer all units.

<table>
<thead>
<tr>
<th>STRANDS</th>
<th>ORGANISERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designing, Making, Appraising</td>
<td>Students specify needs, develop design proposals, identify resources, sequence activities and implement ideas, as individuals and in teams, in quest of solutions to challenges. They take into account functional, aesthetic, social and environmental issues. Processes and products are evaluated against original intentions.</td>
</tr>
<tr>
<td>Information</td>
<td>Students use the procedures, conventions and language of information technology to manage, interpret, transform, communicate and evaluate information. They examine the influence of cultural and environmental values.</td>
</tr>
<tr>
<td>Materials</td>
<td>Students trial and combine software and hardware resources to meet design specifications.</td>
</tr>
<tr>
<td>Systems</td>
<td>Students responsibly operate computer systems having gained familiarity with the individual components and their function. They investigate applications in particular contexts, gaining awareness of how people interact with such systems and of the influence on lifestyles and work environments.</td>
</tr>
</tbody>
</table>
Introductory and Applications Units

Non-sequential and intended to give students high levels of competence in the relevant applications software.
- IT concepts
- Presentations and communications
- Internet and WWW
- IT publishing
- Spreadsheets

Systems Analysis and Design Units

Focus on students learning how to analyse, design and build a "real" information system based on relational database software.
- Relational database design
- Relational database usage
- Relational database implementation

Graphics and Multimedia Units

- Graphics and animation
- Digital Animation
- Digital editing
- Interactive multimedia 1 & 2

Data Communications Units

- Local area networks 1 & 2
- Data communications

Algorithmic Design and Programming Units (Problems Analysis, Solution Design and Programming)

Focus on developing computer problem solving skills in terms of problems analysis, solution design and programming through a range of languages eg. Visual Basic, C++.
- Program Design and Concepts 1 & 2
- Advanced Program Design and Concepts 1 & 2
- Object Oriented Programming
- Assembly Language Programming
- Knowledge Based Systems
- Application Programming

Hardware Based Units

- Control Systems
- Computer Architecture

Project Units

- IT Project
- Extended IT Project

Most Colleges also offer the system wide Information and Administration Studies course, an accredited vocational course preparing students for work in an office environment. Units are sequential and students must complete two years of study to qualify for certification.

At this stage there are no plans for significant changes to what is currently being offered. Minor updates and enhancements reflective of changing agendas in industry and vocational education can be expected when courses are due for re-accreditation.

Moderation days are held twice per year. Their purpose is to examine assessment items and student assignments and match them against "A" to "E" grade descriptors. Each college provides a portfolio of work that has already been marked from the previous semester - one piece of work for each grade level. Groups of teachers examine the portfolios and provide written feedback about the work standard. The desired outcome is that this will help teachers gain a more intuitive understanding of the grade level that will lead to improved consistency across colleges. It should be noted that this is only one part of the moderation process; AST is also used to moderate across colleges to ensure comparability.

DEPARTMENT OF EDUCATION

FOCUS ISSUE - STRATEGIC DIRECTIONS

The past twelve months have brought significant change to the managerial structure and strategic intent of the Department of Education in relation to information technology. This has resulted in an increasingly collaborative and integrated approach between technical and pedagogical perspectives with both Departmental and school practitioner interests represented. An Information Management branch has been established under the leadership of a Chief Information Officer. The branch has three key sections namely IT Support, On-line Services and IT Applications and there have been consequent changes to committee arrangements.

IT Support
- infrastructure assets & administration
- applications support and IT security
- technical support
- IT projects

On-line Services
- web publishing and administration
- on-line projects
- e-learning
- digital resources collection
- publishing and promotions

IT Applications
- software administration

Schools Information Management Group

- Identifies broad directions, policy issues and priorities for ICT in schools including deployment of centrally administered discretionary ICT resources.
- Oversees implementation of the Plan for IT in Learning and Teaching and strategies to achieve the ICT goal outlined in the ACT Government School Plan.

Membership comprises –
Executive Directors : Corporate Services Education and Training
Directors : School Programs / Human Resources / Schools Directorate (2)
Manager : On-Line Services
Principals : College (2); High School (2); Primary School (3); Special Schools (1)

Schools IT Networks Forum

- Supports schools in integration of ICT initiatives such as e-learning strategies and professional development.
- Supports SITG in implementation of the Plan for IT in Learning and Teaching and strategies to achieve the ICT goal outlined in the ACT Government School Plan.
- Promotes good / innovative practice in curriculum use of ICT.
- Identifies significant issues.
- Provides a communication conduit between schools and Department through regular sector meetings.

Membership comprises –
Chief Information Officer
Managers : On-Line Services / Staff Development / Curriculum Initiatives / IT Support / Assessment
Schools Directorate (2)
Schools Representatives : Colleges (2); High Schools (2); Primary Schools (3); Special Schools (1)
Plan for Information & Communication Technology in Learning & Teaching (2001)

An expansion pack for the original 1997 – 1999 Plan describes developmental pathways towards e-learning and the connected classroom (collaborative learning projects). It uses as organising strands, key action areas impacting on teaching and learning in an on-line world ie. people, infrastructure and content. The identified paths are as follows with three stages described against each for schools to plot their progress.

- ICT Strategic Planning in Schools
- Network Management
- Network Infrastructure
- Technical Support for ICT
- ICT Competencies for Teachers
- Digital Resourcing and Content Management
- ICT Integration in Classroom
- The Connected Classroom
- School Website Design and Maintenance

It is intended that this bridging document and the next IT system plan will align ACT school and system initiatives with the school education action plan for the information economy Learning in an On-line World.

E-Coaches

Two E-Coaches are appointed as temporary contracts within the Department of Education. They have the brief of working with school based ICT Committees in guiding curriculum change that promotes the use of e-learning and innovative on-line teaching strategies in the classroom.

Computers for Teachers Program

This initiative provides computing systems for full-time equivalent teachers in their workplace. Whilst there have been negative issues arising from the implementation strategies of the program, it has fostered improved access and increasing confidence and competence in teacher use of information technology resources.

CEGACT

FOCUS ISSUE - Supporting IT Directions in the ACT

As a result of a Future Directions Workshop in October, 2000 a new vision has been defined for CEGACT -

“That CEGACT be the expert professional association providing leadership in, and support for, Information and Communication Technologies (ICT) in the education community.”

This involves -

• building and nurturing learning communities
• empowering members to be confident and innovative in their use of ICT
• providing a range of networking opportunities ie. discussion groups, on-line forums and general meetings
• initiating and supporting innovative projects
• creating and maintaining links with relevant associations for mutual benefit
• consulting with government and industry bodies
• playing an advocacy role to promote effective use of ICT.

The vision grew out of assessing historical perspective and current practice in the light of the profile, value added principle and achievements it is desired to have associated with CEGACT. The ICT system-identified theme of ACT government schools’ professional development in 2001 fits the scope of the new vision for the association. CEGACT is providing support through advice about potential speakers, options for workshops, models for IT Strategic Plans, delivering quality "on site" workshops and convening an annual conference.

ISSUES OF CONCERN

Skilled Teacher Pool

 Especially for the College sector, acquisition of teachers with the theoretical concepts and high level application skills for the specialist content tertiary units is challenging. The difficulties are masked at high school level due to Departmental endorsed and promoted integration of ICT competencies across the curriculum.

Professional Development

Whilst there are a number of avenues for professional development related to information technology, the focus is curriculum integration of ICT skills. There is insufficient opportunity for those already highly proficient to be supported to remain at the leading edge and a tendency for inadequate addressing of the needs of those who teach Computing Studies as a discipline.

Bandwidth

ACT Department of Education regards the future for government schools as lying with TransACT but this does pose some difficulties at least initially. TransACT is running behind schedule and will not service all areas of ACT. Telstra ADSL is under consideration as a short-term solution for non-administrative networks in schools with satellite trialing a possible option for schools in those suburbs not serviced by TransACT. Given the stated Departmental future directions to a web-centric environment for schools then high-speed, reliable access to on-line resources is paramount.

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