Computer Applications Technology and the designated list

Motivation for Computer Applications Technology (CAT) to be part of the designated list

CAT, as a subject, has been greatly misinterpreted and misjudged by many people and organisations such as HESA.

It seems that CAT has been wrongly compared to the Report 550 Computyping subject, which offered a limited (and mostly outdated) set of skills and knowledge.

CAT has a substantial body of knowledge offering a wide range of very important and relevant knowledge and skills to survive the information age and a technology-driven society.

What does CAT offer? – Knowledge and skills

CAT offers:

- A solid foundation and background regarding

    – The computer environment, i.e. hardware, software, networks and the technologies involved

    – The Internet, WWW, e-communication and the technologies involved

    – Information management and working with data

    – The impact of technology on society in various contexts

    – Developing solutions to a variety of problems using application software.

- A foundation for further study and/or world of work (life skills)

CAT learners are taught knowledge and skills that enable them to:

- become fluent computer technology users (much more than merely being computer literate), using applications such as word processing, spreadsheets, database, and presentations effectively and efficiently to solve problems encountered daily in various contexts. Fluency implies expertise and effective use of technology and appropriate applications.
- understand the computer environment in which they function, including using technology responsibly and ethically.
- conduct research to be able to solve problems by finding and accessing data and information, processing and manipulating the data and information into knowledge that provides insight and supports decision making as well as presenting the information in
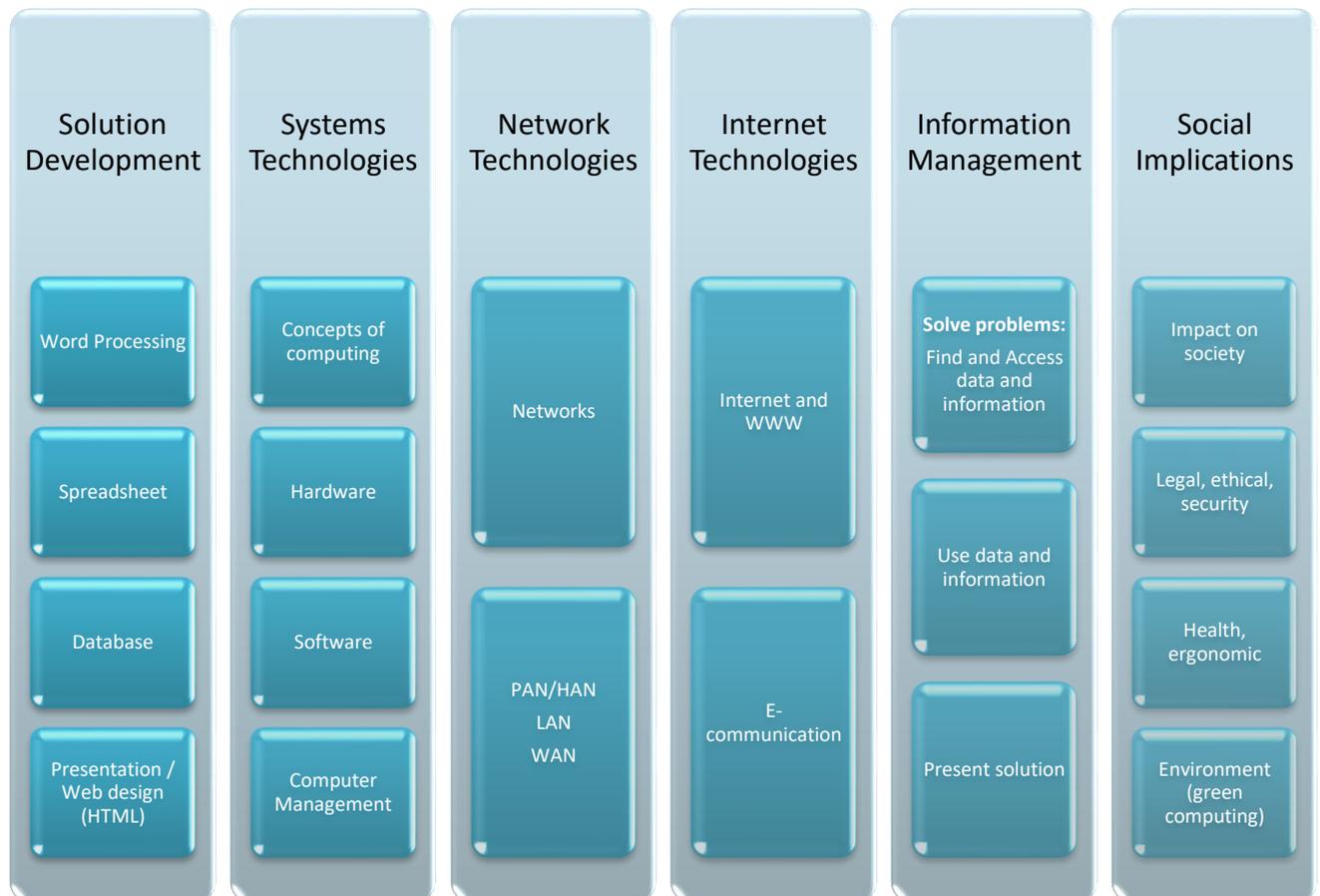
suitable formats such as a report or presentation, tailored to suit the audience they are presenting to.

- communicate information using appropriate office applications in a professional and efficient fashion.
- troubleshoot daily end-user computer-related problems
- apply computational thinking to solve typical end-user computer-related problems using appropriate application software; to design and create documents for specific scenarios; etc.

Content dealt with in CAT

CAT has both a practical and a theoretical component. In many instances the theoretical content is also dealt with at a practical level, providing learners with a sound understanding of theory, application and practice.

The practical content is dealt with in a manner that also teaches the theory and understanding underlying the skills so that knowledge and skills can be transferred to new situations and technology as it evolves.

Solution Development	Systems Technologies	Network Technologies	Internet Technologies	Information Management	Social Implications
Word Processing	Concepts of computing	Networks	Internet and WWW	**Solve problems:** Find and Access data and information	Impact on society
Spreadsheet	Hardware			Use data and information	Legal, ethical, security
Database	Software	PAN/HAN LAN WAN	E-communication	Present solution	Health, ergonomic
Presentation / Web design (HTML)	Computer Management				Environment (green computing)

Though CAT teaches the skills to use application packages such as word processing, spreadsheets and databases, the ultimate aim is to use the applications to solve problems that draw on mathematical literacy as well as sound language skills and which include, but are not limited to:

- using functions and formula to do calculations for budgets, conversion calculators, etc.

- using application facilities to create graphs/charts to interpret trends and patterns, draw conclusions and make decisions.
- storing data and formulate queries to extract information from the data according to specified criteria and to compile reports based on the data stored.
- communicating information through various formats using the facilities provided by word processing and presentation software.
- managing various types of data and information in solving problems using a range of resources, including the Internet which also involves browsing and searching skills as well as critical evaluation of websites and web content.
- debating social issues that revolve around information and communication technologies and the use thereof as well as the impact on society and the environment.

Many of the above activities involve higher order thinking skills that include:

- Problem solving
- Analysis, interpretation, evaluation, remixing, creating and innovation

Assessment

CAT involves comprehensive assessment strategies which include:

- Examinations, tests and assignments
  - Tailored to real life application using scenarios and case studies
- Two examination papers (3 hours each)
  - Practical paper focusing on the practical skills – proficient use of applications and problem solving
  - Theory paper focusing on the theory aspects as well as the theory underpinning the practical content and skills
- Practical Assessment Task
  - Comprehensive project that includes assessing the process as well as the end product
  - Solving an information problem that involves a series of smaller tasks such as defining the problem, asking questions, finding data (including the use of questionnaires) and information, evaluating information and information sources, processing the data and manipulating information and presenting the solution by writing a report.

Relevance

An article referring to a study done by Hanlie Griesel and Ben Parker about the attributes of South African graduates – from the perspective of employers, that appeared in the Mail and Guardian on 3 December 2009, (http://mg.co.za/uploads/2009/12/03/graduate-attributes-proofs.pdf) suggests that employers value the following from graduates:

- Communication skills
  - Written and presentation

- Information skills

- Fluent (i.e. expertise and effective use) users of technology

- Understanding of Technology

- Problem solving skills

- Enquiry and research skills

These are skills that CAT offers. If employers want this from university graduates, learners entering university should have a solid background regarding these skills.

Many tertiary institutions require students to have completed a course in the use of computers before the course is recognised. For example, for many years now UNISA has required students to have the ICDL Start certificate. If this is not done prior to entering the institution students need to find the time (and the money) to complete the course whilst studying other subjects. CAT maps to the ICDL and in terms of its objectives and assessment it goes far beyond the ICDL.

The fact that CAT is not a 'designated' subject makes some learners shy away from taking the subject and they, therefore, lack these very important skills required for further study.

Consequences of the designated list or non-designated subjects

Subjects that do not appear on the designated list are often incorrectly 'labelled' as not being 'academic' subjects or falsely perceived as subjects that should be offered by learners with 'lower' cognitive abilities, despite the fact that these subjects encourage entrepreneurship – a dire need for our economy to grow or for offering the knowledge and skills for people to become self-employed and being able to put food on the table.

Furthermore, if one considers the future job market and fastest growing careers, network and communication skills, database skills, etc. are very prominent.

Suggestion

The designated list should be scrapped. Instead, relevance of and achievement levels in subjects should be considered as entry requirements.

Conclusion

When looking at the knowledge and skills that CAT offers, what is required at university and in the work place, as well as comparing the content and skills of CAT to other designated subjects, there is no reason for CAT to be excluded from this list.