

Information Processes and Technology

Stage 6 Draft Syllabus Package

Consultation Report

1. Background

The preparation of the **Information Processes and Technology** Stage 6 Draft Syllabus Package took into account the instructions described in the writing brief approved by the Board in **December 1998**.

The **Information Processes and Technology** Stage 6 Draft Syllabus Package has been distributed widely for comment over the period **15th March 1999 - 26th April 1999**. Additionally, consultations on the **Information Processes and Technology** Stage 6 Draft Syllabus Package have included responses from the following:

- ⇒ School sector representatives
 - Department of Education and Training
 - Association of Independent Schools

- ⇒ Tertiary representatives
 - Ray Offen CSIRO Macquarie University
 - Denise Tolhurst School of Information Systems - UNSW

- ⇒ Industry education representatives
 - Adrienna Ross CSO - Production and Client Services

- ⇒ Professional associations
 - Computer Studies Teachers Association

- ⇒ The Board Curriculum Committee for **Computing Studies**.

Modifications to this draft, following widespread consultations, will enable the syllabus package to be finalised for submission to the Board Curriculum Committee, and the Board.

41 written responses to the consultation progress report in **Information Processes and Technology** were received. The sample profile is as follows:

26 Individual responses

Teachers	26				
Rural	4				
Government	3	Catholic	0	Independent	1
Metropolitan	22				
Government	12	Catholic	4	Independent	6
Academics	2				
Others	1				

18 institution/group responses

Organisation details:

Schools:

Moderate (<500)	1	Medium (500 – 800)	1	Large (>800)	6
Government	6	Catholic	2	Independent	0

Tertiary/post-school:

Universities	0	TAFE	0	Industry/training	0
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Special Interest:

Parent Groups	0	School Sectors	2	Other	1
Teacher/professional associations			1		

Key Issues

<p>Summary of Key Issues for Stage 6 Information Processes and Technology arising from the consultation process:</p>	<p>Summary of action taken as a result of these Key Issues:</p>
<ul style="list-style-type: none"> • Objectives and outcomes need refining. • A number of respondents commented that the content appears unstructured. Specific recommendations have been proposed that relate Information Processes to their application. • A number of recommendations were made by respondents in relation to the course structure (weightings and topics titles), and the need for a clear framework. 	<ul style="list-style-type: none"> • A reference group, along with the IPT writers reviewed the objectives and outcomes. The writers have amended the syllabus in response to the recommendations of this group. (pages 11 and 12) • A reference group comprised of expert teachers, BCC representatives, writers and the project manager reviewed the link between outcomes and content. The content has been revised and clarified in response to the recommendations of this group. • The course structure (page 9) has been revised to better reflect the rationale, outcomes and content of the courses.

3. Analysis

3.1 Quantitative Analysis

3.1.1 Information Processes and Technology in the Stage 6 Curriculum

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
9	5	21	0	2	0
24%	14%	57%	0%	5%	0%

3.1.2 Pathways for Information Processes and Technology Stage 6 Students

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
8	10	15	1	3	0
22%	27%	41%	3%	8%	0%

3.1.3 Aim

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
9	6	17	3	1	1
24%	16%	46%	8%	3%	3%

3.1.4 Objectives

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
11	4	19	2	1	0
30%	11%	51%	5%	3%	0%

3.1.5 Course Structure

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
10	3	16	2	4	2
27%	8%	43%	5%	11%	5%

3.1.6 Outcomes

3.1.6a Preliminary course outcomes

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
10	5	15	3	1	3
27%	14%	41%	8%	3%	8%

3.1.6b HSC course outcomes

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
11	5	16	1	2	2
30%	14%	43%	3%	5%	5%

3.1.7 Content

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
12	4	12	4	2	3
32%	11%	32%	11%	5%	8%

3.1.8 Course Requirements

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
11	5	15	2	3	1
30%	14%	41%	5%	8%	3%

3.1.9 Assessment Components, Weightings and Tasks

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
11	4	17	1	2	2
30%	11%	46%	3%	5%	5%

3.1.10 <Subject>Stage 6 HSC Examination Specifications

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
10	5	17	4	1	0
27%	14%	46%	11%	3%	0%

3.1.11 Post-School Opportunities

3.1.11a Links between courses and training packages

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
11	4	12	9	0	1
30%	11%	32%	24%	0%	3%

3.1.11b Links between courses and VET opportunities

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
12	4	13	6	2	0
32%	11%	35%	16%	5%	0%

3.1.12 Information Processes and Technology Stage 6 Sample HSC Assessment Items

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
11	6	11	5	0	4
30%	16%	30%	14%	0%	11%

3.1.13 Information Processes and Technology Stage 6 Draft Performance Bands

Nil Response	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
11	4	18	2	1	1
30%	11%	49%	5%	3%	3%

3.1.14 Overall Evaluation

Nil Response	Excellent as is	Good, with fine-tuning	Acceptable with re-working	Unsure	Unsatisfactory in issues treatment
9	1	12	7	3	5
24%	3%	32%	19%	8%	14%

3.2 Issues Raised and Writing Team Action

Syllabus Item	Issues	Source/s	Action
<p>Information Processes and Technology in Stage 6 Curriculum</p>	<ul style="list-style-type: none"> • This section refers to “Information Technology”. This is the only reference to the term in the syllabus. Should be integrated throughout the syllabus. • The suggestion that students will appreciate the “impact” of information on “many aspects of life” is too passive. This should reflect more interactive involvement by students. • Is the 2nd last paragraph on p10 necessary? 	<ul style="list-style-type: none"> • BCC • BCC • Ind / Uni 	<ul style="list-style-type: none"> • The writers have refined the rationale and the terminology throughout the syllabus. (Page 6) • The writers have refined the rationale. (page 6) • Disagree. The relationship of the two courses to the overall field of computing education is relevant to the rationale.

<p>Pathways for Information Processes and Technology Stage 6 Students</p>	<ul style="list-style-type: none"> • Stage 6 into “TAFE, Workplace, University, Other” confusing. It looks like SDD goes into TAFE / University and IPT into University. BCC suggested change in SDD • The VET course needs to be included in the diagram. • “Own experience” arrow redundant. 	<ul style="list-style-type: none"> • Individual response • BCC • Individual response • Individual response 	<ul style="list-style-type: none"> • The writers have amended the diagram, in line with other Technology subjects, to address these concerns. (Page 7) • Agreed. This has been revised. (page 7) • No action. Arrow reflects computing experiences in other KLA’s. This is relevant.
<p>Aim</p>	<ul style="list-style-type: none"> • The wording needs to be revised to reflect correct terminology and for clarity. 	<ul style="list-style-type: none"> • BCC 	<ul style="list-style-type: none"> • Agreed. The aim has been revised. (page 8)
<p>Objectives</p>	<ul style="list-style-type: none"> • Some minor changes to wording of outcomes may help to clarify the intention of the course including its practical nature and the role of emerging technologies 	<ul style="list-style-type: none"> • BCC 	<ul style="list-style-type: none"> • A reference group and the writers for Software Design and Development reviewed the objectives, outcomes and content components. The writers have amended the objectives. (Page 8)
<p>Course</p>	<ul style="list-style-type: none"> • Needs an opening explanation of 	<ul style="list-style-type: none"> • BCC 	<ul style="list-style-type: none"> • Agreed. A statement has been

<p>Structure</p>	<p>the time allocations (the percentage figures).</p> <ul style="list-style-type: none"> • Change of name from “Introduction to Information Skills and systems” in the writing brief to “Principles of Information Processes” in the Preliminary Course. • Add “Social and Ethical Issues” as a bullet point under “Principles of Information Processes” in the Preliminary Course. • Change the percentage weighting of “Tools for Information Processes” from 20% to 30% in the Preliminary Course. • Change the percentage weighting of Developing Computer Systems for Information Processing” from 40% to 30% in the Preliminary Course. • Change the name of “Developing 	<ul style="list-style-type: none"> • CSTA • BCC • BCC • BCC • BCC 	<p>inserted above the structure diagram. (page 9)</p> <ul style="list-style-type: none"> • The names of the topics will reflect the names from the revised content and writing brief. This has been supported in consultation. • Agreed. This has been added to the diagram(page 9) and the content (page 16) • Agreed. The % weightings in the Preliminary course have been changed to reflect the depth of treatment of revised content for each topic. (page 9) • Agreed. This has been adjusted (page 9) • Agreed. The topic name has
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	<p>Computer Systems for Information Processing” in the Preliminary Course back to “Planning, Design and Implementation” as used in the writing brief.</p> <ul style="list-style-type: none"> • In the HSC course, make “Information Systems” a section heading and give it a weighting of 40%. Remove the weighting of 20% from “Communication Systems”. Make “Communication Systems” a bullet point below “Information Systems” and add “Information Organisation” as a bullet point before “Communication Systems” and “Social and Ethical Issues” after. • Diagram for 2.6.1 needs some of the boxes joined, arrows added and new topic name adjustments to reflect 2.6 Course Structure. • Project work appears to be a vehicle to practically experience 	<ul style="list-style-type: none"> • BCC • CSTA • BCC • DET 	<p>been changed. (page 9)</p> <ul style="list-style-type: none"> • “Decision Support Systems” and “Communication Systems” are the titles which have been used after consultation between an expert reference group, BCC members and the writers. The weighting for each topic is 20%. “Social and Ethical Issues” have been integrated into the content. • Agreed. The diagram has been adjusted to reflect the content and the course structure. (page 10) • Agreed. The minimum weighting of 20% for project
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	<p>the theoretical content of the course. Therefore, maybe 20% weighting should be a minimum.</p> <ul style="list-style-type: none"> • The information processes need not refer to a computer system. Need to make this clear. • There are three dimensions to the course, the processes, the technologies and the project. As a basis for assessment, how well a system has been set up, how appropriate is the technology used and how well the system meets its objectives should all be considered 	<ul style="list-style-type: none"> • DET • DET 	<p>work is reflected in the syllabus.</p> <ul style="list-style-type: none"> • This is in contrast to BCC and CSTA. Revised content necessitates the study of information systems that require computers. • This is has been reflected in assessment guidelines
Outcomes	<ul style="list-style-type: none"> • Some minor changes to wording of outcomes may help to clarify the intention of the course including its practical nature and 	<ul style="list-style-type: none"> • BCC • CSTA 	<ul style="list-style-type: none"> • A reference group along with the writers for SDD reviewed the objectives, outcomes and content components. The

	<p>the role of emerging technologies</p> <ul style="list-style-type: none"> • Should refer to Information systems instead of computer systems in outcomes. • Concern that the use of the words creatively and methodically is clumsy (see outcomes for objective 4). 	<ul style="list-style-type: none"> • CSTA • CSTA 	<p>writers have amended the Draft Syllabus according to the recommendations of this group. (pages 11 and 12)</p> <ul style="list-style-type: none"> • The outcomes have been revised in response to the reference group meeting as described above. • The outcomes have been revised in response to the reference group meeting as described above.
Content	<p>2.8 Preliminary Content</p> <ul style="list-style-type: none"> • Insert pg 29-33 of writing brief 'Information Processes' to place the content for "Personal and Group Systems and Project(s)" in context. • Need to clarify understanding that the focus is on information processes and how technology can assist this. 	<ul style="list-style-type: none"> • BCC • DET 	<ul style="list-style-type: none"> • These pages are the bases for the majority of the content in the course. The topic "Introduction to Information Skills and Systems" has been moved and is the first to be studied. It sets the framework for the whole course. • These have been reworded. The revised content clearly indicates the relationship between Information Processes, Information

	<p>2.8.1 Personal and group project</p> <ul style="list-style-type: none"> • Refocus on learning in groups and using technology in groups (pg 35 of writing brief). Clearly distinguish between group work and personal work, i.e. team V's individual. Include pg 29 (project management) and pg 36 (computer supported work) from the writing brief. <p>2.8.2 Principles</p> <ul style="list-style-type: none"> • What are the Principles (in Personal and Group Projects) These need to be explained – see Writing Brief p33. • Include “Social and Ethical Issues” into 2.8.2 “Principles of Information Processes” • Change the components of a computer system from ‘hardware, 	<ul style="list-style-type: none"> • BCC • CSTA • BCC • BCC 	<p>Technology, Participants and Data/Information. (pages 14 and 15)</p> <ul style="list-style-type: none"> • Agreed. This has been adjusted (pages 28 and 29) • The topic “Introduction to Information Skills and Systems” has been moved and is the first to be studied. It sets the framework for the whole course and the principles are included in that topic. • Agreed. These appear in the revised content. (page 16) • The writers have amended
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	<p>software, data, personnel and procedures’ to ‘Purpose, Processes, People, Information and Technology’ – this ties in the information processes moves away from the focus used in the Stage 5 course.</p> <ul style="list-style-type: none"> • In ‘Digital representation of data, include a section on why the digitization of data is necessary. • The focus should be on a solution and the needs of the user, not on what a particular product can do. <p>2.8.3 Tools for Information Processes</p> <ul style="list-style-type: none"> • Compression and movement of files, exchange, anti-virus, and recovery tools have been left out. • Need to include an explanation of 	<ul style="list-style-type: none"> • CSTA • CSTA • Ind/Uni • BCC 	<p>this section to address these concerns with the exception that “purpose” has been expanded to show “end user/s” and “need”. (Page 14)</p> <ul style="list-style-type: none"> • This section has been modified accordingly. (Page 16) • Agreed. The revised course content reflects this. • Agreed. These issues have been integrated into appropriate sections of the
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	<p>why the tools are used (their purpose) before the content on how they work and are used.</p> <ul style="list-style-type: none"> • A suggested re-organisation for this topic; for each of the information processes, break down content into 'text, structured information, numerical, communication, files' • The placement of 'RAM and ROM' under "storage and retrieving" - also has processing implications. • Tools for processing should include software tools for processing. <p>2.8.4</p> <ul style="list-style-type: none"> • Change the name of the topic to "Planning, Design and 	<ul style="list-style-type: none"> • BCC • CSTA • BCC • BCC • CSTA • BCC 	<p>revised content.</p> <ul style="list-style-type: none"> • Agreed. This has been incorporated into the revised content. • This topic has been organised to show the purpose that hardware, software, non computer tools, social and ethical issues for each of the information processes. In the course data has been categorised as text, numbers, image, video and audio. • Particular hardware and software are integrated throughout the content as appropriate. <p>Agreed. This has been adjusted.</p>
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	<p>Implementation”</p> <p>2.9.1 Project Work</p> <ul style="list-style-type: none"> Information life cycle should have the same stages as used in topic 2.8.4 Must be explicit about the purpose for the project for students and how teachers are to set a project. <p>2.9.2 Information Systems</p> <ul style="list-style-type: none"> Re-organise content and headings in this section as outlined above in structure. 	<ul style="list-style-type: none"> CSTA BCC CSTA Ind / Uni BCC 	<ul style="list-style-type: none"> Agreed. The syllabus has been adjusted. Agreed. This has been adjusted in the syllabus. The purpose for an information system has been integrated throughout the course. Project work supports this. <p>This topic has been revised and is titled “Decision Support Systems”.</p> <ul style="list-style-type: none"> Agreed. The structure table
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	<ul style="list-style-type: none"> • Need to add in “Social and Ethical content” as per writing brief. • Instead of deciding upon the number of decimal places for data p34, make more general, e.g. decide on an appropriate display format. • Students should be able to say what is the advantage of using one tool for analysis over another tool for a given situation. They should also appreciate that a solution may involve a combination of tools. • Maybe a better organiser would be to determine an aspect of a process e.g. data manipulation when organising, and then list the ways different applications do this. <p>2.9.2 to 2.9.4.4</p>	<ul style="list-style-type: none"> • BCC • Individual Response • CSTA • Ind / Uni • Ind / Uni 	<p>has been adjusted (page 9)</p> <ul style="list-style-type: none"> • Agreed. This has been adjusted. • This aspect of the syllabus has been revised and made more flexible. • Agreed. This is reflected in the revised content for the entire HSC course. • This problem has been overcome by organising the HSC course around different types of information systems.
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	<ul style="list-style-type: none"> • Re-organise content under headings of Hardware, Software, Non-Computer. Ethical issues should be highlighted under each heading. Also under each heading, the purpose for each, the principles, and examples (bring in applications here). This needs to be done for all topics within these sections. • Emphasis should be on the task to be solved rather than the appropriate tool. Analyze the data and choose an application rather than an application. • When considering past, present and future trends, consider the evolution of needs, technologies and approaches e.g. mail to hotmail. • Clearly spell out that while only some processes are being 	<ul style="list-style-type: none"> • BCC • CSTA • Response • Ind/ Uni • Ind / Uni • CSTA 	<ul style="list-style-type: none"> • This organisation of content has been used in topic 2.8.2 (Preliminary Course. Page 18) To remove overlap between the Preliminary and HSC courses, the HSC course has been organised around different types of information systems. • Agreed. This is reflected in the revised content. • Agreed. This is reflected in the revised content.
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	<p>concentrated on in a topic, all processes are still relevant.</p> <p>2.9.3 Communication systems</p> <ul style="list-style-type: none"> Reference to V.90 standard and 'category 5 twisted pair too specific. <p>2.9.4 Option Strands</p> <ul style="list-style-type: none"> Re work the introduction and the organisation of content areas to make this whole section more clear. Each of the options need a description in their introduction. Move the selected context areas for investigation back into the content. Select two for each option and build the content around them. Specific comments relating to each of the options in the draft 	<ul style="list-style-type: none"> CSTA BCC CSTA BCC Ind / Uni Ind / Uni BCC Ind / Uni CSTA 	<ul style="list-style-type: none"> Agreed. This is reflected in the revised content. Where possible references to specific technology have been revised so that they are not restricted to reflect past or current development Agreed. This has been adjusted. Agreed. This has been adjusted. Agree in principle. Specific examples have been included in each of the options.
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	<p>syllabus were made.</p> <ul style="list-style-type: none"> • A number of comments referred to specific examples of hardware and software. • Some comments drew attention to the implied preference for Intel based computer systems. 		<ul style="list-style-type: none"> • These comments are no longer relevant with the revised options presented in the final syllabus. • Where appropriate these have been moved to Preliminary Topic 2.8.2 Tools for Information Processing. • This has been corrected and the term “Personal Computer” has been used to refer to all brands and operating systems.
Assessment	<ul style="list-style-type: none"> • Concern about the percentage weighting of the project. • There should not be a break 	<ul style="list-style-type: none"> • DET • DET 	<ul style="list-style-type: none"> • A reference group along with the writers for SDD reviewed the objectives, outcomes and assessment components. The writers have amended the

components, weightings and tasks	<p>down between of 'Knowledge and Understanding' and 'Skills' in the component section.</p> <ul style="list-style-type: none"> • Summary table of External and Internal assessment has some mistakes and weightings reconsidered. 	<ul style="list-style-type: none"> • Ind / Uni 	<p>Draft Syllabus according to the recommendations of this group. The assessment components and weightings have been revised in response to this.</p>
Information Processes and Technology Stage 6 HSC Examination Specifications	<ul style="list-style-type: none"> • Needs a total re-working. 	<ul style="list-style-type: none"> • BCC 	<ul style="list-style-type: none"> • The exam specifications have been altered to address these concerns.
Post-School Opportunities	<ul style="list-style-type: none"> • This section was confusing to many teachers. • All of the Competency codes p 63 need to be renumbered. • The Australian Qualifications Framework does not indicate any private sector training under the VET column. 	<ul style="list-style-type: none"> • BCC • Ind / Uni 	<ul style="list-style-type: none"> • The text in this section has been revised. • The text in this section has been revised. • The text in this section has been revised.
Information	<ul style="list-style-type: none"> • The sample items reflect the 	<ul style="list-style-type: none"> • BCC 	<ul style="list-style-type: none"> • A complete sample HSC exam

<p>Processes and Technology Stage 6 Sample HSC Assessment Items</p>	<p>demands of a course for higher ability students.</p>		<p>has been developed which caters for a broader range of student abilities and which reflects the revised outcomes and content of the final syllabus.</p>
<p>Information Processes and Technology Stage 6 Draft Performance Bands</p>	<ul style="list-style-type: none"> • Typical performance at each of the bands are adequate but will need to be modified in line with any changes made to the Draft Syllabus. • Teachers expressed uncertainty at the role performance bands are to play in teaching, learning and assessing. 	<ul style="list-style-type: none"> • BCC • DET 	<ul style="list-style-type: none"> • Work on performance bands will continue. Another iteration of the draft performance bands will be published in the final syllabus package. Performance bands will not be finalised until 2001.

4. Responses

Written responses were received from the following individuals and groups:

Individual Name	Organisation
Fran Westley	Taree High School
S Russell	Liverpool Girls High School
Peter Miniutti	Penshurst Girls' High School
Richard Mackaway	Greystanes High School
Adrienna Ross	CSO - Production and Client Services
Brian Kelly	John Paul College
R. MacMaster	John Paul College
Mary Lee	Santa Sabina college
David Graham	Coleambally Central School
Jeff Palmer	Edmund Rice college
Lesley Atfield	Crookwell High School
Denise Tolhurst	School of Info Systems - UNSW
Anonymous	
Maureen Davis	Maroubra High School
Philip Woollett	Gymea Technology High School
Peter Ware	Macarthur Girls Technology High
G. Hillis	Granville Boys' High School
Jennifer Thomson	Pendle Hill High School
Arna Wesley	Loreto Kirribilli
Caterine Webber	Model Farms High School
Yu Kuen Poon	Stella Maris college
Rowena Whittle	Mitchell High School
J Emmerson	Abbotsleigh Anglican School for Girls
Ray Offen	CSIRO-Macquarie University
Paul Versteger	Winmalle High School
Rae Deeley	Canterbury Girls High School
Suzanne Warmerdan	Trinity Catholic college
Tony Sharman	Lindisfarne Anglican School
Neville Harrison	Queenwood School for Girls

Groups
Computing Studies BCC
Creative Design Dept. - Kambala COE Girls School
JFHS Computing Dept. - James Fallon High
Computing Faculty - Forster High School
Computing Teachers - Westfields Sports High
Kelso High - Kelso High School
St Francis Xavier - St Francis Xavier College
Department of Education and Training
Association of Independent Schools
TAS Department - Bankstown Senior College
Computing Studies Teachers Association
Computing Studies - Randwick Girls High School