



Mathematics

Stage 6

Consultation Report

**Courses: Mathematics General 1
Mathematics General 2**

2007

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1 Introduction

1.1 Background Information

Evaluation and review of the current Stage 6 Mathematics syllabuses

The current *Mathematics 2/3 Unit Syllabus – Years 11–12* was introduced in 1983, while the current *4 Unit Mathematics Syllabus* was introduced in 1980, with some amendment in 1989. The current General Mathematics course was introduced in 2000 as part of the New Higher School Certificate.

The Board of Studies initiated the revision of the suite of Stage 6 Mathematics courses, following the completion of new K–6 and Years 7–10 Mathematics syllabuses in 2002, to ensure an up-to-date and cohesive K–12 continuum of mathematics teaching and learning in New South Wales that meets the needs of the full range of students.

In 1998, the Board undertook the evaluation of all existing Higher School Certificate (HSC) courses against the specific criteria of the Government's White Paper *Securing Their Future* (August 1997). For Stage 6 Mathematics, two evaluation reports were developed: *Mathematics 2/3/4 Unit* and *Non-Calculus-Based Mathematics (incorporates Mathematics in Society and Mathematics in Practice)*.

Following the release of these reports, the Board endorsed the development of a single, non-calculus-based course (which became General Mathematics) to replace Mathematics in Society and Mathematics in Practice and the maintenance of the 2, 3 and 4 Unit courses for the immediate future, with 'minimal change to existing content'. The Board also agreed to 'a longer term, comprehensive review of the present 2/3/4 Unit courses by an appropriately constituted expert committee'.

The *General Mathematics Syllabus* was released to schools in June 1999, with the study of the Preliminary course undertaken for the first time in 2000, and the first HSC examination undertaken in 2001. As an interim arrangement for the introductory years of the new HSC, the Board of Studies maintained the course content, internal assessment arrangements and examination specifications of the 2, 3 and 4 Unit Mathematics courses from the previous HSC. The new HSC standards-referencing procedures that were introduced for all new HSC Board-developed courses were also put in place for these Mathematics courses, which were renamed Mathematics, Mathematics Extension 1 and Mathematics Extension 2 respectively.

In July 2000, the NSW Government announced the review of Years 7–10 Mathematics following its 1999 commitment in *Literacy and Numeracy Plan: Focusing on the basics* that: 'A new Years 7–10 Mathematics syllabus will be developed to ensure it provides students with the skills, knowledge and understanding required and appropriately prepares students for the New School Certificate and the New Higher School Certificate'. At about this time, the Board of Studies announced the review and development of the K–6 Mathematics syllabus.

The review and development of K–10 Mathematics consequently became the focus of Mathematics curriculum development in 2000–2002, with its completion a necessary prerequisite to the 'longer term, comprehensive review of the present 2/3/4 Unit courses' agreed to by the Board in 1998.

With the completion of the new K–6 and Years 7–10 syllabuses at the end of 2002, a plan was established for the review and development of the Stage 6 calculus-based Mathematics courses. In considering the plan, the Board felt that it would be necessary to review the full Stage 6 Mathematics provision, taking account of the needs of less able students as well as those who would undertake the higher-level calculus-based courses. The Board endorsed the plan for the review and development of the full Stage 6 Mathematics course provision in December 2004.

Scope of Mathematics Stage 6 review and development

The implementation of the plan in 2006, with the commencement of the *Mathematics Stage 6 Review and Development Project*, recognised the importance of teachers having appropriate time to focus on the implementation of the new *Mathematics Years 7–10 Syllabus*, and the value of obtaining feedback following 2004 and 2005, the initial years of implementation.

The first phase of the project, *Syllabus Review*, commenced in March 2006. The main purpose in undertaking the *Syllabus Review* phase was to review the existing Mathematics course provision and to establish Broad Directions for revision and development.

A range of strategies was used to gather data in the *Syllabus Review* phase. The most significant of these were:

- oral submissions
- written submissions
- a survey of a sample of schools
- a symposium
- a literature and curriculum review.

The information obtained through the data-gathering strategies used in the *Syllabus Review* phase was analysed to identify issues that need to be considered in the revision and development of Stage 6 Mathematics courses. Key findings were synthesised from the data and a set of draft Broad Directions for the revision and development compiled.

The Board's endorsement of the Broad Directions at its December 2006 meeting represented the conclusion of the *Syllabus Review* phase of the project. The Broad Directions have guided the development of the draft Writing Briefs for the calculus-based, and non-calculus-based, Stage 6 Mathematics courses.

1.2 Timeline

Steps in the Syllabus Development Process	Dates
<p>Syllabus Review</p> <ul style="list-style-type: none"> • Oral submissions • Written submissions • Symposium • Survey of a sample of schools • Literature and curriculum review 	<p>24–25 May 2006 closed 30 June 2006 19 August 2006 closed 18 September 2006 August–September 2006</p>
<p>Writing Brief Development</p> <ul style="list-style-type: none"> • Preparation of draft writing briefs and surveys • Consultation (five weeks) • Development of consultation reports and revision of draft writing briefs 	<p>January 2007 – April 2007 1 May 2007 – 1 June 2007 June 2007 – August 2007</p>
<p>Syllabus Development</p> <ul style="list-style-type: none"> • Development of draft syllabuses and surveys • Consultation (eight weeks) • Development of consultation reports and revision of draft syllabuses • Distribution of syllabuses • Development and distribution of specimen examination papers and marking guidelines 	<p>September 2007 – April 2008 May 2008 – June 2008 July 2008 – October 2008 November 2008 (Date to be determined)</p>
<p>Note: Support Materials The nature of proposed support materials is presented in section 7 of the Draft Writing Brief.</p>	

1.3 Broad Directions for the Mathematics Stage 6 Writing Briefs – endorsed by the Board of Studies on 12 December 2006

Note: *The Board of Studies endorsed these Broad Directions on 12 December 2006. They reflect the consultation undertaken in Phase 1 of the Syllabus Development Process and inform the development of Section 4 of the Draft Writing Brief, which is subject to consultation. The Broad Directions are not subject to consultation.*

Broad Directions:

- That the set of Stage 6 Mathematics courses include an additional offering to accommodate the purposes of students who wish to study a Board-developed Mathematics course in Stage 6 but who are currently choosing not to, as well as those whose purposes are not accommodated through the study of General Mathematics.
- That in the revision, due attention be given to clarifying the purpose of each course and identifying future learning or vocational pathways of the intended candidatures.

- That the nested structure of the current Mathematics ('2 Unit'), Mathematics Extension 1 and Mathematics Extension 2 courses, and the calculus-basis to these courses, be retained.
- That any revision or development of the calculus-based courses maintain the current rigour and level of challenge of the courses.
- That the amount of content prescribed for Stage 6 Mathematics courses reflect the amount that can be taught, and learnt by the typical student, in the indicative time.
- That in reviewing the content of Stage 6 Mathematics courses, particular attention be given to the purpose of the Mathematics ('2 Unit') course for Mathematics ('2 Unit')-only students, and the appropriateness and relevance of the course content for those students.
- That the inclusion of additional study of statistics be considered, while addressing implications in relation to the extent of relevant teacher expertise, professional development, future pathways of students, school Mathematics staffing, and school timetabling.
- That the current General Mathematics course material be largely maintained within the structure of Stage 6 non-calculus-based Mathematics courses.
- That, in reviewing the content of the calculus-based-courses, the appropriateness and relevance of the applications within the courses be explored, with a view to ensuring that they are contemporary and that they meet the needs of students.
- That, in the consideration of the use of technology in Stage 6 Mathematics courses, due regard must be given to the related access and equity issues.
- That the use of technology with capabilities beyond the level of scientific calculators be encouraged in the learning and teaching, and school-based assessment, of all Stage 6 Board-developed Mathematics courses.
- That the non-calculus-based Stage 6 Mathematics courses be developed with the view that technology with capabilities beyond the level of scientific calculators will need to be utilised for aspects of the associated HSC examinations.
- That the use of technology in HSC examinations for the calculus-based courses be further investigated and clarified in the Writing Brief phase.
- That the appropriateness of the current processes for the examination of Stage 6 Mathematics courses be reviewed, with particular emphasis on the examination of Mathematics ('2 Unit')-only candidates.
- That the syllabus documents within the Stage 6 Mathematics syllabus package incorporate applications, implications and considerations for the teaching of the syllabus content, including in relation to depth of coverage.
- That each Stage 6 Mathematics course be named so as to avoid confusion with the discipline itself.

1.4 The development of the Draft Writing Brief

The development of the Draft Writing Brief was undertaken under the direction of the Inspector Mathematics and the Senior Project Officer, Mathematics Stage 6. For the development of the Draft Writing Brief, contract writers were required. Advertisements were placed in the *Board Bulletin* calling for expressions of interest from experienced Mathematics curriculum writers. Applicants were placed on a register of writers. From this register, writers with appropriate expertise were chosen.

The project team developed the Draft Writing Brief using the findings of a literature review, surveys, oral and written submissions, a symposium, and other consultation and research.

The development of the Draft Writing Brief involved writers working at the Office of the Board of Studies, commencing in January 2007. The Draft Writing Brief was completed in preparation for publication and distribution for the designated consultation period 1 May – 1 June 2007.

2 Consultation Methodology

Consultation on the Mathematics Stage 6 Non-calculus-based Courses Draft Writing Brief involved a combination of quantitative and qualitative methodology.

2.1 Data Collection

The Mathematics Stage 6 Non-calculus-based Courses Draft Writing Brief and the accompanying survey were published on the Board's website and distributed for consultation to schools, key groups and individuals.

Surveys

The Mathematics Stage 6 Non-calculus-based Courses Draft Writing Brief was accompanied by a survey (Appendix A) that allowed for a judgement on a four-point Likert scale, as well as extended comment, on each section of the Draft Writing Brief. Surveys were sent to all schools, the Board's consultative network, Mathematics academics, Mathematics Education academics, teacher unions, professional associations and parent and community organisations. The survey enabled the gathering of a large cross-section of quantitative data and qualitative comment.

A total of 117 survey responses was received by 15 June 2007. Of these 117 responses, approximately 46% were from groups and 50% from individuals. The option was provided to respond to surveys online, by email, or in hard copy. A further 37 responses were submitted that did not address the survey questions specifically but provided a range of comments on particular aspects of the Draft Writing Brief.

The results of these surveys were tabulated and analysed in relation to both the qualitative and quantitative material in the survey responses as well as the strengths and weaknesses of the Draft Writing Brief identified by the respondents. The consultation report incorporates the quantitative data and analysis and key qualitative comments.

Focus groups

During the consultation period, focus groups of teachers, academics, and sector and professional association representatives, were held in different regions across the state. A profile of potential participants that represented a range of experience was established. Board Liaison Officers then contacted schools, TAFEs and universities to identify the participants. A total of 152 teachers and academics were consulted. The purpose was to obtain feedback on the Mathematics Stage 6 Non-calculus-based Courses Draft Writing Brief by conducting a discussion based on a series of questions. (Appendix C).

Focus groups were held as follows:

Focus Group	Location	Date
South Coast	Batemans Bay	Tuesday 8 May 2007
Riverina	Wagga Wagga	Wednesday 9 May 2007
MANSW	Office of the Board of Studies	Thursday 10 May 2007
Academics (Metropolitan)	Office of the Board of Studies	Wednesday 16 May 2007
Metropolitan East/ Metropolitan North	Office of the Board of Studies	Monday 21 May 2007
Western (1)	Bathurst	Tuesday 22 May 2007
Hunter	Newcastle	Wednesday 23 May 2007
Metropolitan North-West/ Metropolitan South-West	Parramatta	Monday 28 May 2007
North Coast	Coffs Harbour	Tuesday 30 May 2007
North West	Armidale	Wednesday 31 May 2007
Western (2)	Broken Hill	Monday 4 June 2007

The meetings were chaired by the Inspector Mathematics/Senior Project Officer, Mathematics Stage 6. One member of the group recorded participants' comments.

2.2 Data Analysis

The notes compiled for each of the focus group meetings were distributed to a representative of the participants to confirm that they represented an accurate summary of the main issues raised at the meeting. These issues were then incorporated into Section 3 of the Consultation Report.

The data collected from the surveys was analysed in two ways. The quantitative data from the Likert items was entered into a spreadsheet in order to collate and summarise the results. The qualitative responses to the surveys, and key group and individual responses, were read and analysed by Board Officers to synthesise the main issues, prepare the commentary and to select representative quotes for each section of the Draft Writing Brief. The responses were also read by representatives of the Mathematics Stage 6 Board Curriculum Committee.

3 Consultation Findings

3.1 Key Findings of the Consultation

Overall response

There has been a positive overall reaction to the Draft Writing Brief and this is evidenced in the analysis of survey responses, key group and individual responses, and the focus groups. In particular, there was general endorsement of the:

- introduction of the Mathematics General 1 course
- use of technology embedded in the teaching and learning
- inclusion of focus studies to give context to the mathematics being taught.

The overall positive response to the document is reflected in the following comments:

Many of these students generally don't view Maths as a priority for their future learning. These courses should go some way in changing how they incorporate Maths into their world.

Survey – Government School

The introduction of General 1 and General 2 is most welcomed.

Survey – Government School Executive Teacher

A positive start – balance between the courses needs to be carefully considered when looking at amount and nature of content. Also provide scope for schools where both courses will be taught in the same class – this needs to be possible and doable.

Survey – Non-Government School Executive Teacher

The 'Focus Study' concept is great as it brings together the various 'strands' in a meaningful way.

Survey – Government School Executive Teacher

While there was consistent overall endorsement of the Draft Writing Brief, several issues of concern were raised. These included:

The naming of the 2 courses is going to create confusion. There needs to be 2 distinct names for the HSC component.

Survey – Government School Executive Teacher

The new General courses still haven't gone far enough to address the needs of students who currently study Applied Maths.

Survey – Head Teacher Mathematics Network

There is little difference in the level of difficulty of the two courses and because the content is so similar, we do not think that we will see an increase in the number of students studying maths.

Survey – Independent School Mathematics Faculty

Split courses in Year 12 will cause problems with timetabling.

Survey – Government School Executive Teacher

3.2 Summary of Key Issues and Actions

This section lists key issues, sources (Board Curriculum Committee (BCC), Department of Education and Training (DET), Focus Groups (FG), Surveys) and actions in relation to each issue.

Key Issues related to Specific Sections of the Draft Writing Brief

ISSUE	SOURCE	ACTION
Rationale		
Need to link to K–10 syllabus Rationale	FG	Agreed
Unnecessarily complicated – keep language simple	BCC FG Surveys	Addressed
Comment on beauty of Mathematics should be included	FG	Included in consultation draft and maintained
Aim		
Remove ‘non-calculus’. State what course is rather than what it isn’t	BCC FG	Done
Elaborate more on ‘school to work’ skills	BCC Surveys	Not incorporated in Aim. To be addressed elsewhere in syllabus package
Objectives		
How will ‘competence in the application of technology’ be assessed?	BCC Surveys	To be addressed in Syllabus Development Phase
Put all knowledge and skills in one dot point. Need greater emphasis on applications	FG	Considered and approach in consultation draft maintained
Concern re workplace mathematics section	BCC Surveys	To be further considered in Syllabus Development Phase
Will/how will we evaluate ‘appreciation of Mathematics’	Surveys	‘Appreciation of Mathematics’ is not to be assessed
Content Organisation		
Two courses in Year 12 will cause timetabling problems	BCC Surveys	Noted and considered an issue for individual schools
Themes have been unsuccessful in the past	BCC Surveys	(See next item under ‘Issue’)
Need to stress that focus study is an application of mathematics, not a thematic approach	BCC DET	To be addressed in Syllabus Development Phase
Move Financial Mathematics from area of study to a focus study	DET	To be considered in Syllabus Development Phase
Need a new General course for non-UAI students	BCC Surveys	Inconsistent with Broad Directions

Need to clarify relation of focus areas to areas of study	BCC Surveys	To be addressed through further explanation in syllabus documents
Preliminary course is too long. There are only three terms in Year 11	BCC Surveys	Noted. (Need to address elsewhere, eg <i>Board Bulletin</i>)
Will Mathematics General 1 be a Category B subject?	BCC FG	Noted. (Not an issue for the Board of Studies)
List of content changes would be useful	BCC FG	To be considered in development of support materials in Syllabus Development Phase
Are areas of study and focus areas taught concurrently or separately?	BCC Surveys	This is an issue for individual schools. Further advice to be included in syllabus documents
Teacher choice of content may disadvantage students	BCC Surveys	This is an issue for individual schools
List prerequisite knowledge and link to Stage 4/5 outcomes	BCC Surveys	To be included in syllabus documents
Outcomes		
Outcomes do not reflect that there are two different courses with different levels of difficulty	Surveys	To be addressed in further developmental work on outcomes
Values and attitudes outcome – change ‘recreation’ to ‘sense of achievement’	Surveys	Noted. No action
Should be in a form useful for reports	BCC FG	To be addressed in further developmental work on outcomes
Content		
Some focus areas have gender bias	BCC Surveys	To be considered in Syllabus Development Phase
Focus studies need to be updated over time	BCC Surveys	Agreed
Algebra should be simplified to suit abilities of majority of students. New Preliminary course has more Algebra hours than old syllabus	BCC DET Surveys	To be addressed in Syllabus Development Phase
Mathematics General 1 provides personal life skills rather than foundation for vocational pathways	VETAC	Further exploration to be undertaken in preparation for Syllabus Development Phase
Rename Mathematics and the Car to driving/transport/machines	BCC FG	Renamed ‘Mathematics and Driving’
Language in Mathematics General 1 should be kept simple	Surveys	Noted and agreed

Sudden jump in level of difficulty from Preliminary to HSC still not addressed by new courses	BCC Surveys	To be considered in Syllabus Development Phase
Technology		
Equity issues need to be addressed	BCC Surveys	Proposed to be addressed through 'Board-prescribed calculator'
Low-ability students have difficulty using graphics calculators	Surveys	Noted
Need to consider whether graphics calculators will be required in the examination	BCC Surveys	Proposed to be addressed through 'Board-prescribed calculator'
Assessment and HSC examination		
Continue current format with two-hour examination and formulae sheet and weighting for Preliminary/HSC courses	BCC Surveys	To be considered in Syllabus Development Phase
Internal assessments to include examination and research assignment	Surveys	To be considered in Syllabus Development Phase
HSC examination questions should not be too wordy	BCC Surveys	Noted. Fundamental principle of examination writing
Mathematics General 1 and Mathematics General 2 should have their own performance scale but some common questions	BCC FG	To be considered in Syllabus Development Phase
Are all focus studies assessable, or can students select option topics as in Mathematics in Society?	Surveys	To be considered in Syllabus Development Phase
Focus study questions should be in blocks in the HSC examination	Surveys	To be considered in Syllabus Development Phase
Length of examination reflects 'seriousness' of course	BCC Surveys	Noted. Length of examinations will be considered in Syllabus Development Phase
Only examine HSC content	Surveys	To be considered in Syllabus Development Phase
Support Materials		
All support listed is required before the commencement of the course, particularly as some teachers of these courses are not Mathematics-trained	BCC Surveys	Noted and agreed
Include website links	BCC Surveys	To be considered in Syllabus Development Phase
Add student work samples for sample assessment tasks	Surveys	To be considered in Syllabus Development Phase

3.3 Specific Sections of the Draft Writing Brief

The quantitative and qualitative consultation is represented in two ways: survey analysis and commentary and representative quotes. The Survey Analysis section represents the breakdown of the results of the data gathered in response to the surveys on the Draft Writing Brief.

The Commentary and Representative Quotes section represents a summary account of the surveys and written submissions from key groups, individuals, organisations and focus groups.

3.3.1 Rationale

The Rationale describes the nature of the subject in broad terms. It explains the place and purpose of the subject in the curriculum.

Survey analysis

a. Approval: 89%	Disapproval: 4%
b. Approval: 85%	Disapproval: 7%
c. Approval: 86%	Disapproval: 4%

Overview of Agree/Disagree levels with prompted statements, n=117 (100%)	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Answered
1.The Rationale in section 5.1 (p. 18)					
a. The Rationale adequately describes the nature of Mathematics in broad terms.	26 (22%)	78 (67%)	3 (3%)	1 (1%)	9 (8%)
b. The Rationale reflects a contemporary view of Mathematics.	22 (19%)	77 (66%)	6 (5%)	2 (2%)	10 (9%)
c. The Rationale reflects the purpose of the non-calculus-based courses.	23 (20%)	77 (66%)	4 (3%)	1 (1%)	12 (10%)

Commentary and representative quotes

Rationale contains a very idealised description of the nature of Mathematics ... and isn't this course first and foremost for a layperson?

Survey – Non-Government Systemic School Teacher

The students should be able to see the usefulness of Maths and justify its merits before they select it as a subject.

Survey – Government School Mathematics Faculty

This has meaning to teachers but maybe a more user friendly version could be developed for students and parents.

Survey – Government School Mathematics Faculty

Rationale reflects a contemporary view of Mathematics.

Survey – Government School Executive Teacher

Good and gives examples of use and application.

Survey – Government School Executive Teacher

3.3.3 Objectives

Objectives provide more specific statements of the intent of the courses. They amplify the aim and provide direction to teachers on the teaching and learning process emerging from the course(s). They define in broad terms the knowledge, skills, understanding and values and attitudes fundamental to the key learning area/subject. They act as organisers of the intended outcomes. The same objectives may apply across Stages in a key learning area/subject.

Survey analysis

a. Approval: 91% Disapproval: 4%
 b. Approval: 83% Disapproval: 8%

Overview of Agree/Disagree levels with prompted statements n=117 (100%)	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Answered
3. The Objectives in section 5.3 (p. 20)					
a. The proposed objectives demonstrate the intention of the non-calculus-based courses.	25 (21%)	81 (70%)	2 (2%)	2 (2%)	7 (6%)
b. The proposed objectives adequately define knowledge, skills, understanding and values and attitudes essential for the non-calculus-based courses.	25 (21%)	72 (62%)	5 (4%)	5 (4%)	10 (9%)

Commentary and representative quotes

Gives scope for higher-order thinking of better candidates.
Survey – Non-Government School Mathematics Faculty

Very thorough. Reflects aim and rationale.
Survey – Government School Executive Teacher

Clear delineation of topic areas.
Survey – Non-Government School Mathematics Faculty

It is of strong concern that students will be asked to demonstrate ‘competence in the application of technology’.
Survey – Non-Government School Executive Teacher

3.3.4 Content Organisation

The Content Organisation section describes how the course content is to be organised.

Survey analysis

a. Approval: 76% Disapproval: 15%
 b. Approval: 70% Disapproval: 18%

Overview of Agree/Disagree levels with prompted statements n=117 (100%)	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Answered
4. Content Organisation in section 5.4 (p. 21)					
a. The proposed content organisation assists understanding of the way the non-calculus-based courses are structured.	29 (25%)	60 (51%)	14 (12%)	3 (3%)	11 (9%)
b. The proposed presentation of content is appropriate for the non-calculus-based courses.	24 (21%)	57 (49%)	12 (10%)	9 (8%)	15 (13%)

Commentary and representative quotes

We strongly argue against a mandatory thematic approach for General 2 ... to avoid a Mickey Mouse perception by the wider community and lack of authenticity because much of it will look contrived. We are otherwise pleased with the content.

Survey – Non-Government School Faculty

The content organisation appears to be practical and appropriate.

Survey – Government School Mathematics Faculty

Structure ... with common preliminary and differentiated HSC components is strongly supported.

Survey – Government School Mathematics Faculty

Two non-calculus courses is positive due to the spread and nature of abilities.

Focus Group – Riverina

It is great to see General 1 developed for the kids that struggle with the current General course.

Survey – Non-Government School Mathematics Faculty

The introduction of focus studies ... will enhance understanding and appreciation in our students. If General 1 is to be made a category B subject it will run a risk of students refusing to study based on their current pattern of study.

Survey – Head Teachers' Network

Good to have pre-requisite knowledge and link to stage 4/5 outcomes. This will assist in programming.

Survey – Government School Executive Teacher

I like the flow from the area of study→unit of work→focus studies.

Survey – Non-Government School Executive Teacher

The material is probably still too hard for the target candidature.

Survey – Government School Teacher

3.3.5 Outcomes

Syllabus outcomes express the specific intended student learning that results from the teaching of the course(s). They are derived from the objectives and content. Outcomes provide clear statements of the knowledge, skills and understanding expected to be gained by most students as a result of effective teaching and learning by the end of a Stage.

Survey analysis

a. Approval: 74%	Disapproval: 8%
b. Approval: 71%	Disapproval: 13%
c. Approval: 76%	Disapproval: 6%

Overview of Agree/Disagree levels with prompted statements n = 117 (100%)	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Answered
5. Outcomes in section 5.5 (p. 23)					
a. The Outcomes for the Preliminary Mathematics General course are appropriate.	18 (15%)	69 (59%)	4 (3%)	6 (5%)	20 (17%)
b. The Outcomes for the Mathematics General 1 HSC course are appropriate.	17 (15%)	66 (56%)	8 (7%)	7 (6%)	19 (16%)
c. The Outcomes for the Mathematics General 2 HSC course are appropriate.	17 (15%)	71 (61%)	3 (3%)	3 (3%)	23 (20%)

Consultation and representative quotes

The outcomes are still vague and general.

Survey – Non-Government School Mathematics Faculty

Well set out. Very clear. We can easily compare similar outcomes for General 1 and General 2.

Survey – Government School Teacher

The outcomes for the General 1 HSC course are too similar to the General 2 HSC course.

Survey – Non-Government School Executive Teacher

Preliminary must be made more relevant to each of the courses.

Survey – Government School Mathematics Faculty

3.3.6 Content

Content describes the knowledge, skills, understanding and values and attitudes to be studied and developed by students over a Stage or Stages in a course and the development of processes of learning so that students are encouraged to be effective learners.

Survey analysis

a. Approval: 61% Disapproval: 29%
 b. Approval: 66% Disapproval: 21%

Overview of Agree/Disagree levels with prompted statements n=117(100%)	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Answered
6. The Content in section 5.6 (pp 26-39)					
a. The proposed Content for the Mathematics General 1 course is appropriate.	15 (13%)	56 (48%)	23 (20%)	11 (9%)	12 (10%)
b. The proposed Content for the Mathematics General 2 course is appropriate.	19 (16%)	59 (50%)	19 (16%)	6 (5%)	14 (12%)

Commentary and representative quotes

General 1 is still a bit hard.

Survey – TAFE Staff

Still extending students beyond their capabilities and subsequent Band 1 ratings result ... not offering any additional accommodation to students ... majority of 5.1 students are unable to academically achieve at General Maths now or revised edition.

Survey – Government Central School Teacher

We believe that the rigour of General 1 course needs to be less intense, particularly when dealing with algebraic manipulation.

Survey – Government School Mathematics Faculty

Our intent should not be to simply reinstate old MIP but to provide students with true TAFE pathways.

Survey – Government School Executive Member

Focus studies should engage our students more than the current course.

Survey – Government School Teacher

The content for the General 1 course needs to be kept to a reasonable size – not too big, considering the allocated time.

Survey – Government School Mathematics Faculty

3.3.7 Use of technology

Survey analysis

Approval: 51%

Disapproval: 35%

Overview of Agree/Disagree levels with prompted statements n=117 (100%)	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Answered
7. Use of technology in section 5.7 (p. 40)					
The proposed approach to the use of technology in the HSC examinations is appropriate.	15 (13%)	45 (38%)	29 (25%)	12 (10%)	16 (14%)

Commentary and representative quotes

The wording is verbose and it is unclear ... exactly what is being proposed.

Non-Government Systemic School Teacher

Technology use in all courses is positive.

Focus Group – Wagga Wagga

More specific detail is needed on what will be expected/allowable in HSC.

Survey – Non-Government School Mathematics Faculty

We agree that the use of technology in teaching and learning is essential but sometimes the teaching of technology overrides the teaching of the concepts.

Survey – Government School Mathematics Faculty

A board-approved calculator is essential which is accessible and affordable.

Survey – Government School Mathematics Faculty

3.3.8 Assessment and HSC examination

Commentary and representative quotes

For consideration: One internal compulsory assessment utilising technology be mandatory.

Survey – Government School Mathematics Faculty

Examine only areas of study from the Prelim course.

Survey – Government School Executive Member

Students must be given access to all formulae, tables etc as the course focuses on using their skills and not recalling facts.

South West Sydney Head Teachers' Network

A formula sheet should be given.

Survey – Non-Government School Executive Teacher

HSC exam to reflect indicative hours of study for each component. Include some preliminary work in HSC exam.

Survey – Government School Mathematics Faculty

3.3.9 Support Materials

Survey analysis

a. Approval: 87%	Disapproval: 4%
b. Approval: 87%	Disapproval: 3%
c. Approval: 87%	Disapproval: 3%
d. Approval: 92%	Disapproval: 1%
e. Approval: 89%	Disapproval: 1%
f. Approval: 85%	Disapproval: 5%
g. Approval: 83%	Disapproval: 5%
h. Approval: 88%	Disapproval: 2%
i. Approval: 83%	Disapproval: 3%
j. Approval: 87%	Disapproval: 3%

Overview of Agree / Disagree levels with prompted statements n=117(100%)	Strongly Agree	Agree	Disagree	Strongly Disagree	Not Answered
9. Support Materials in section 7 (p. 45)					
The following should be included in support materials:					
a. Teaching and learning units	76 (65%)	26 (22%)	2 (2%)	2 (2%)	11 (9%)
b. Advice on programming	76 (65%)	26 (22%)	4 (3%)	0 (0%)	11 (9%)
c. Program overviews	73 (62%)	29 (25%)	4 (3%)	0 (0%)	11 (9%)
d. Advice in relation to teaching 'new' areas of course content	91 (78%)	16 (14%)	1 (1%)	0 (0%)	9 (8%)
e. Teaching suggestions to assist the development of meaningful and engaging units of work	81 (69%)	23 (20%)	1 (1%)	0 (0%)	12 (10%)
f. Sample HSC assessment programs	77 (66%)	22 (19%)	4 (3%)	2 (2%)	12 (10%)
g. Advice on the utilisation of different types of assessment tasks	76 (65%)	21 (18%)	4 (3%)	2 (2%)	14 (12%)
h. Sample assessment tasks	87 (74%)	16 (14%)	1 (1%)	1 (1%)	12 (10%)
i. Suggestions for the utilisation of technology in teaching and learning	80 (68%)	18 (15%)	3 (3%)	0 (0%)	15 (13%)
j. Applications that relate to real-world problems	77 (66%)	24 (21%)	2 (2%)	1 (1%)	13 (11%)

Commentary and representative quotes

Any change needs support.

Survey – Government School Executive Teacher

My main concern with these changes is that textbook and teacher resource availability will not be adequate in 2010 to reflect these changes.

Survey – Non-Government School Mathematics Faculty

These courses are likely to be taught by relief staff, semi-trained staff on many occasions. Support needs to be provided so that less well-trained staff can implement the courses with minimal worries, or workload. Support to be provided prior to implementation.

Survey – Government School Executive Teacher