

# Preparing an assessment program for Information Processes and Technology

Technology Unit  
Curriculum Support Directorate  
Support for the NEW HSC

## Preparing an assessment program – Information Processes and Technology

The following is a set of steps that will assist in developing an assessment program for your teaching and learning program. This process is suitable for use with the preliminary or HSC course.

### Step 1: Map the course outcomes

All course outcomes are to be included in the assessment program. Teachers need to plan carefully to ensure they provide sufficient opportunities for students to achieve the outcomes and for the teacher to gather and record evidence so that they are able to provide feedback to each student about his or her achievement of the outcomes.

As part of the process of developing teaching programs and assessment programs, it is important to map the syllabus outcomes of the course against the course content.

The relationship between outcomes and content is different in each of the eight technology syllabuses.

The grids shown below map the Preliminary and HSC course outcomes of the Information Processes and Technology syllabus against the content.

Preliminary Outcome	Introduction to Information Skills and Systems 20%	Tools for Information Processes 40%	Planning, Design and Implementation 20%	Personal and Group Systems and Projects 20%
P1.1	√	√	√	√
P1.2	√	√	√	√
P2.1	√	√	√	√
P2.2	√	√	√	√
P3.1	√	√	√	√
P4.1	√	√	√	
P5.1		√	√	√
P6.1		√	√	√
P6.2		√	√	√
P7.1		√		√
P7.2		√		√

Information Processes and Technology Preliminary course outcomes mapped against content

#### Option Strands - Study 2 strands only

HSC Outcome	Project Work	Information Systems and Databases	Communication Systems	Transaction Processing Systems	Decision Support Systems	Automated Manufacturing Systems	Multimedia Systems
H1.1	√	√	√	√	√	√	√

H1.2	√	√	√	√	√	√	√
H2.1	√	√	√	√	√	√	√
H2.2	√	√	√	√	√	√	√
H3.1	√	√	√	√	√	√	√
H3.2	√	√	√	√	√	√	√
H4.1	√	√	√	√	√	√	√
H5.1	√						
H5.2	√	√	√	√	√	√	√
H6.1	√						
H6.2	√						
H7.1	√						
H7.2	√						

Information Processes and Technology HSC course outcomes mapped against content

Mapping of the outcomes and content is an important step in programming. In instances where an outcome is addressed once only in the teaching program, teachers will need to ensure they provide ample opportunity for students to work toward achieving, and demonstrating achievement of the outcome.

Where an outcome is included more than once, teachers will still need to ensure that the outcome is included at the relevant points in their teaching program. However they will have more opportunities to build student learning experiences and gather evidence for assessing student achievement of that outcome.

## Step 2: Brainstorm possible tasks

For each outcome, brainstorm and research the range of appropriate tasks that could be used in Information Processes and Technology. This may assist you to identify which outcomes could be assessed together in one assessment task.

The table below can be used to brainstorm tasks most suited to particular outcomes.

Preliminary Outcome	Assessment tasks and strategies
P1.1 describes the nature of information processes and information technology	
P1.2 classifies the functions and operations of information processes and information technology	
P2.1 identifies the information processes within an information system	
P2.2 recognises the interdependence between each of the information processes	
P3.1 identifies social and ethical issues	
P4.1 describes the historical development of information systems and relates these to current and emerging technologies	
P5.1 selects and ethically uses computer based and non-computer based resources and tools to process information	
P6.1 analyses and describes an identified need	
P6.2 generates ideas, considers alternatives and develops solutions for a defined need.	
P7.1 recognises and applies management and communication techniques to project work	
P7.2 uses technology to support group work	

An example of the assessment tasks suggested by one group of teachers for the preliminary course is shown below.

Preliminary Outcome	Assessment tasks and strategies
P1.1 describes the nature of information processes and information technology	Oral presentations Exam essays
P1.2 classifies the functions and operations of information processes and information technology	Review computing products Student explanation/demonstration Project Exam
P2.1 identifies the information processes within an information system	Test PowerPoint presentation Project Exam
P2.2 recognises the interdependence between each of the information processes	Written report/research task Project Exam Case study
P3.1 identifies social and ethical issues	Project work Research task. .exam Interview Case study
P4.1 describes the historical development of information systems and relates these to current and emerging technologies	Oral presentation Research task Project Case study
P5.1 selects and ethically uses computer based and non-computer based resources and tools to process information	Practical task Project Portfolio of student work
P6.1 analyses and describes an identified need	Scenario Project interview
P6.2 generates ideas, considers alternatives and develops solutions for a defined need.	Project Portfolio of student work
P7.1 recognises and applies management and communication techniques to project work	Project work Demonstration/explanation Student logs and journal
P7.2 uses technology to support group work	Project work, student logs and journal Practical assessment Portfolio of student work

The table below can be used to brainstorm tasks most suited to particular outcomes.

HSC Outcome	Assessment tasks and strategies
H1.1 applies an understanding of the nature and function of information technologies to a specific practical situation	
H1.2 explains and justifies the way in which information systems relate to information processes in a specific context	
H2.1 analyses and describes a system in terms of the information processes involved	
H2.2 develops solutions for an identified need which address all of the information processes	
H3.1 evaluates the effect of information systems on the individual, society and the environment	
H3.2 demonstrates ethical practice in the use in information systems, technologies and processes	
H4.1 proposes ways in which information systems will meet emerging needs	
H5.1 justifies the selection and use of appropriate resources and tools to effectively develop and manage projects	
H5.2 assesses the ethical implications of selecting and using specific resources and tools	
H6.1 analyses situations, identifies a need and develops solutions	
H6.2 selects and applies a methodical approach to planning, designing or implementing a solution	
H7.1 implements effective management techniques	
H7.2 uses methods to thoroughly document the development of individual and/or group projects	

An example of the assessment tasks suggested by one group of teachers for the HSC course is shown below.

HSC Outcome	Assessment tasks and strategies
H1.1 applies an understanding of the nature and function of information technologies to a specific practical situation	Practical Task Project
H1.2 explains and justifies the way in which information systems relate to information processes in a specific context	Examination Case study
H2.1 analyses and describes a system in terms of the information processes involved	Exam Oral report
H2.2 develops solutions for an identified need which address all of the information processes	Project Written report Practical presentation
H3.1 evaluates the effect of information systems on the individual, society and the environment	Project Examination Discussion/observation
H3.2 demonstrates ethical practice in the use in information systems, technologies and processes	Project Practical work Case study/scenario
H4.1 proposes ways in which information systems will meet emerging needs	Project Debate/discussion Written report
H5.1 justifies the selection and use of appropriate resources and tools to effectively develop and manage projects	Project Process diary
H5.2 assesses the ethical implications of selecting and using specific resources and tools	Project Process diary Examination
H6.1 analyses situations, identifies a need and develops solutions	Project
H6.2 selects and applies a methodical approach to planning, designing or implementing a solution	Project
H7.1 implements effective management techniques	Project work
H7.2 uses methods to thoroughly document the development of individual and/or group projects	Project work

### Step 3: Review assessment requirements in Board syllabuses

Refer to *Assessment components, weightings and tasks* in section 12, *Assessment and Reporting*, of the syllabus.

Draw up a table which allows the teacher to map how each assessment task addresses the syllabus outcomes, content, and assessment components and weightings. Below are shown sample tables for each course. Steps 4-8 will assist you to complete the assessment table.

Preliminary course	Task1:	Task2:	Task3:	Task4:	Task5:
Syllabus components, weightings and related outcomes	Outcomes:	Outcomes:	Outcomes	Outcomes:	Outcomes:
	Content:	Content	Content:	Content:	Content
	Date:	Date:	Date:	Date:	Date:
Introduction to information skills and systems 20%					
Tools for information processes 40%					
Planning, design and implementation 20%					
Personal and group systems and projects 20%					
Total 100%					

Information Processes and Technology Preliminary course sample assessment table

HSC course	Task1:	Task2:	Task3:	Task4:	Task5:
Syllabus components, weightings and related outcomes	Outcomes: Content: Date:	Outcomes: Content Date:	Outcomes Content: Date:	Outcomes: Content: Date:	Outcomes: Content Date:
Project work 20%					
Information systems and databases 20%					
Communication systems 20%					
Option strands 40%					
Total 100%					

Information Processes and Technology HSC course sample assessment table

In the top line of each table:

- *Task* refers to the name of the task
- *Date* refers to the scheduled date the task is due
- *Outcomes* refers to the syllabus outcomes addressed by the task and should have the number of each outcome listed
- *Content area* refers to the syllabus content area addressed by the task.

## Step 4: Cluster or group the course outcomes

Information Processes and Technology has 11 outcomes for the preliminary and 13 outcomes for the HSC course. If all outcomes are to be addressed in an assessment task, then most, if not all tasks will need to assess a number of outcomes. This is best achieved by clustering or grouping the outcomes.

Steps 1 and 2 assist in this process. Outcomes may be clustered together because they are best assessed by a similar type of task. For example, some outcomes lend themselves better to research and analysis tasks whilst others may be more suited to demonstrations, experimentations or other forms of practical work.

Each clustered group of outcomes will form the basis of one task.

- Is the number of tasks manageable(3-5)?
- Are all course outcomes being addressed?

## Step 5: Select the task type.

Decide on the most appropriate task type to use for each cluster of outcomes.

Ask the following questions when completing this step.

- What type of task will best assess student achievement of these outcomes?
- Does the task type give your students the best chance to demonstrate achievement of the outcome?
- Is a range of task types being used across the course to allow students to demonstrate achievement of outcomes in a variety of ways?
- Do the task types fit within the overall teaching and learning program?

## Step 6: Outline each of the assessment tasks

At this stage in the development of an assessment program, it is important to develop an outline of the task. The detailed task description and marking scheme do not need to be completed. In your task outline you will need to ensure that:

- a manageable number of outcomes is being assessed
- the task chosen will enable the outcomes to be assessed effectively
- the task will measure what you want it to assess
- students will have the best opportunity to demonstrate what they know and can do.

Insert the information regarding each of the tasks into an assessment grid such as that shown under step 3.

## Step 7 Allocate the weighting for each task

Insert the weighting information regarding each task into the assessment program.

- Does each task weighting follow the weightings required by the syllabus and the relative importance of the task?
- Is each task weighted at between ten and forty per cent?

Add each column across and down to ensure that the total value of the task is 100% and the value of each component is appropriate.

## Step 8: Schedule each task

Decide on the timing of each task. Consider:

- the school calendar of events
- the amount of teaching time needed to ensure that students have had the opportunity to achieve the outcomes before being assessed
- the capacity of all classes in the school that are undertaking the same course to be assessed with the same or equivalent tasks.

Insert the date for each task into the assessment program.

## Step 9: Check that your assessment program meets all requirements

Does your internal assessment program for the HSC Information Processes and Technology course:

- include 3-5 tasks?
- include a range and balance of task types?
- address all course outcomes?
- focus on a manageable number of specified outcomes in each task?
- adequately reflect the practical intent of the syllabus, especially those outcomes (H1.1, H2.2, H3.2, H5.1, H5.2, H6.1, H6.2, H7.1, H7.2) which are not readily assessed by the external examination?
- reflect syllabus assessment components and weightings of
  - project work – 20%?
  - information systems and databases – 20%?
  - communication systems – 20%?
  - option strands – 40%?
- weight individual tasks between 10% and 40%?
- schedule tasks so that students have ample opportunities to achieve the specified outcomes before being assessed in the task?
- schedule tasks so that later tasks carry more weight?

## Step 10: Develop each assessment task and marking guidelines

When designing and fully developing each assessment task it is important to consider the following key questions.

- Does the task fit into the overall teaching and learning program?
- Does each task take place after students have had structured learning experiences to achieve the specified outcomes?
- Does it follow the weightings or components required by the syllabus?
- What outcomes will the task assess?
- Does this type of task best assess student achievement?
- Will I be able to mark the task to reflect student achievement of the outcomes assessed by the task?
- Does the wording of the task provide clear directions to students about what they are expected to do?
- Will the students understand the language?
- Is the language consistent with the Board of Studies glossary of keywords?
- Does the task allow students to show a range of achievement levels?

When developing the marking scheme it is important to consider the following questions.

- Does my marking scheme address the range of outcomes addressed in the task?
- Do the marking guidelines reflect the information provided to students about the task?
- Does my marking scheme indicate the marks to be awarded for different levels of performance?
- Is the marking scheme feasible to apply and can it be used fairly and equitably?
- Do the marking guidelines provide feedback to students about their standard of performance and indicate areas for improvement?

In reviewing how the task will be presented to students you need to consider the following.

- Have I provided students with clear information and expectations about the task?
- Do the students know what they have to do to be awarded marks?

When considering the type of feedback that will be provided to students by the task, you need to consider the following.

- Does the task provide opportunities for feedback to students which will assist them in their learning?
- In what form will feedback be provided to the students?
- Will the task provide useful feedback on the effectiveness of the teaching program?