2001 HSC
Notes from
the Examination Centre
Industrial Technology

Published by Board of Studies NSW
GPO Box 5300
Sydney 2001
Australia

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Internet: http://www.boardofstudies.nsw.edu.au

ISBN:1 74099 0293

200232

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2001 HSC NOTES FROM THE EXAMINATION CENTRE INDUSTRIAL TECHNOLOGY

Introduction

This document has been produced for the teachers and candidates of the Stage 6 course in Industrial Technology. It provides comments with regard to responses to the 2001 Higher School Certificate examination, indicating the quality of candidate responses, and highlights the relative strengths and weaknesses of the candidature in each section and each question.

It is essential for this document to be read in conjunction with the relevant syllabus, the 2001 Higher School Certificate written examination, the Marking Guidelines, and other support documents, that have been developed by the Board of Studies to assist in the teaching and learning of Industrial Technology.

General Comments

In 2001, 3539 candidates presented for the Higher School Certificate examination in Industrial Technology. This candidature represented an increase of approximately 730 candidates compared to the 2000 candidature. The largest increase was in the Timber and Furniture Products Industries Focus Area, with growth evident in the Multimedia Industries Focus Area and Graphics Industries Focus Area.

The total candidature for the 2001 examination was divided amongst the Syllabus Focus Areas as follows:

Focus Area	**Candidature**
Automotive Industries	94
Building and Construction Industries	0
Electronics Industries	114
Graphics Industries	199
Multimedia Industries	165
Timber and Furniture Products Industries	2646
Metals and Engineering Industries	267
Plastics Industries	0

In the written examination, many candidates experienced difficulty due to their inadequate responses and lack of depth of knowledge of syllabus requirements. The literacy demands of the written examination have increased as a result of the changes to the New Higher School Certificate, and many candidates struggled with the concepts and terminology that were used in the examination.

It would appear that many candidates are placing too little regard on and inadequately preparing for the written examination. In a number of cases, candidates failed to ‘put pen to paper’ in the written examination.

Candidates need to learn how to interpret examination questions and to determine the intention of the question. This can be achieved by practising more examination style questions in preparation

for the written examination. A thorough knowledge of the syllabus requirements will assist candidates in determining the depth of treatment of content areas.

Section I

All Focus Areas

Specific Comments

Question 1

(a) Many candidates ignored the information at the beginning of the question and demonstrated little understanding of the terminology as per the glossary of key words. Therefore these candidates limited their potential to achieve maximum marks.

(b) Most candidates failed to outline the impact of expansion upon both organisation and management.

(c) The majority of candidates had difficulty interpreting the term 'marketing features'. Many responses were limited to different forms of advertising.

(d) (i) Many candidates only provided a brief explanation of mass production, and then experienced difficulty in explaining how mass production could affect profitability.

(ii) The relationship between quality control and products was generally satisfactorily described. However, many candidates failed to describe the relationship between quality control and services.

Question 2

Terms such as 'discuss' and 'describe' were poorly understood by most candidates. Many candidates confused personnel with personal in their responses.

(a) Candidates confused 'implications' with 'considerations'.

(b) (i) The term 'multiskilling' was well understood but not related to efficiency in most cases.

(ii) This part was poorly answered. Many candidates did not know what personnel issues were, nor how they might influence efficient production.

(c) Many candidates reverted to rewriting the question and taking up the writing space. Good responses to this part indicated how appropriate computer software is related to each stage of production.

(d) While some candidates were able to name a number of training methods, many candidates were unable to articulate how staff are assessed for competence. Most candidates were unable to properly structure a discussion, ie to provide advantages and disadvantages.

Question 3

(a) (i) Generally well answered but most Metals and Engineering candidates stated what the 'danger area' was.

(ii) Most candidates were able to describe the features but had trouble with the term 'effectiveness'.

(iii) Most candidates gave a general response, such as 'so everyone can see it', without making specific reference to placement.

(iv) Most candidates could provide a number of strategies, however a significant number failed to notice the plural of strategies and gave only one strategy.

(b) (i) Overall, a mixed response from candidates and generally not completed well. Candidates had problems with the term 'information processing'. Few candidates examined the preparation features of sourcing and design, with most concentrating on explanations of what a word processor does. Many candidates could name two computer software packages. Few candidates detailed the presentation of the manual in its final form. Most candidates failed to read the question and therefore did not score well. Some candidates misinterpreted the question and outlined the contents that should be included in the manual. A question worth nine marks needs a substantial response compared to a one or two mark question.

(ii) Generally well done. Some candidates misplaced the decimal point in their answers. Other candidates did not understand the term 'inclusive' and calculated GST.

Section II

Focus Area - Automotive Industries

General Comments

Generally candidates responded well to the paper. Some candidates had difficulty providing an extended response to Questions 4(d) and 5(d).

Specific Comments

Question 4

(a) Generally this part was well answered. Some candidates had difficulty recognising the water pump. Answers ranged from exhaust systems to differentials.

(b) (i) Most candidates recognised that the carburettor mixes fuel and air, but were unable to describe the correct ratio.

(ii) Candidates did not fully show the difference between a carburettor and fuel injection. Most candidates showed one difference.

(c) Some candidates showed the direction of the flow of air and fuel incorrectly, although the question was generally well answered, with most candidates understanding how a carburettor works.

(d) Candidates were unable to break the question down into the three response areas required. As a result, many had difficulty gaining high marks for this part.

Question 5

(a) Generally this part was well answered by most candidates.

(b) Most candidates were able to recognise the need for a wheel alignment, but very few candidates were able to describe how the process is carried out.

(c) (i) Responses to this part were very poor. Many candidates responded by indicating that the braking system under light conditions operated on two wheels only, and the secondary system did not engage until heavy braking took place. A small number of candidates recognised a dual circuit braking system as a safety feature or recognised the need for a proportioning valve.

(ii) This part was generally well answered, with most candidates able to discuss a set of steps for the removal of the brake shoes. Some candidates answered the question in terms of disc brakes while others failed to indicate the tools used to remove the shoes.

(d) Many candidates misunderstood the question and answered by giving a general description of the two braking systems rather than a discussion of the effectiveness of the both types of brakes.

Focus Area - Electronics Industries

Specific Comments

Question 4

(a) (i) This part was generally well answered by most candidates.

(ii) The majority of candidates demonstrated a clear understanding of series and parallel connections.

(b) (i) Most candidates recognised the missing base connection to the transistor; however, few understood the need to add the current limiting resistor or the link to the relay.

(ii) Average candidates understood thermistor function while the better candidates understood the relationship between the thermistor and variable resistor.

(c) Most candidates were capable of outlining a strategy for manual fault-finding. Better candidates were able to develop an appropriate strategy for a complex mass-produced item. Seemingly many candidates lacked exposure to related industrial practices.

Question 5

(a) (i) This part was generally well answered. Most candidates were able to identify the diode.

(ii) Many candidates were able to accurately describe the operation of the diode. A few candidates focused on the process (rectification), not the component.

(b) Potential difference was generally poorly understood by the candidature. Very few candidates were able to explain the link between potential difference and current.

(c) This part was generally well done, with most candidates being able to relate the question to their practical work. However, some candidates failed to name the method used.

(d) The majority of candidates were unable to effectively interpret and respond to this part. Most described an imaginary process whereby different chemicals were mixed together and used simultaneously. However, the occupational health and safety issues were well addressed by most. Many candidates were not able to name the chemicals they described.

Overall, candidates displayed a poor knowledge of the glossary of key words used to develop questions.

Focus Area – Graphics Industries

Specific Comments

Question 4

(a) The majority of candidates provided at least one correct response.

(b) Candidates generally understood the concept of sectional drawings but failed to relate them to the manufacturing process. The majority of candidates gained marks by providing features.

(c) Generally candidates understood why AS1100 was important for the production of drawings. Approximately one-third only of the candidature made the link between dimensioning, projections and symbols and their importance to AS1100.

(d) The quality of many candidate responses indicated that they knew the difference between marketing graphics and trade drawings; however they did not provide sufficient detail to achieve maximum marks.

Question 5

(a) This part was generally well answered; candidates had little trouble in identifying oblique and perspective projection.

(b) Most candidates could provide one relevant benefit of using computer-generated graphics when designing products.

(c) (i) Many candidates demonstrated an understanding of what mechanical drafting is, but had difficulty explaining why it may still be necessary.

(ii) Many of the candidates were able to provide a brief outline of the effect of computerisation in drawing office practice, but were not able to provide detailed explanations.

(d) Candidates could provide good general descriptions of techniques; however few went on to give detailed descriptions for making images suitable for advertising campaigns.

(e) Most candidates were able to indicate examples of hardware and software; however they failed to compare and contrast them. The term 'media' was poorly understood by the majority of candidates.

Focus Area – Metals and Engineering Industries

General Comments

Generally candidates responded well to the paper. Where candidates were required to list, identify, state etc, the questions were reasonably well answered. Questions that required discussion, analysis, and justification were more challenging to these candidates. The general literacy level of some candidates was relatively poor.

In the more extended questions, candidates did not realise that the main issues of the questions were analysis of the product, safety and justification of production processes. Many candidates therefore failed to attempt parts of these questions.

Specific Comments

Question 4

(a) (i) This part was generally well answered by candidates.

(ii) Candidates needed to relate their answer to industrial processes. Most candidates provided little description.

(iii) This part was generally poorly answered. Candidates did not provide a reasonable explanation of a method of joining the tubes together. Most candidates did not relate their answers to safety standards.

(iv) Most candidates did not relate their responses to industrial processes. Many candidates related their answers to individual projects they may have constructed. Candidates were able to name and describe but most did not give a reason for their choice.

(b) Most candidates did not relate evaluation to design, research and production, in order to meet Australian Safety Standards, and in many instances these standards were not even mentioned.

A number of candidates did not relate their answers to companies but rather concentrated on a simple project.

Question 5

(a) This part was generally well answered by most candidates.

(b) Candidates did not answer this question as well as expected. Many of the processes identified were inappropriate for the manufacture of a mild steel hotplate. In most cases candidates did not mention the hole or the troughs, therefore ignoring the processes required to manufacture these details.

(c) This part was very poorly attempted. Candidates were unable to select another material suitable for the hotplate.

(d) This part was generally well answered with most candidates able to sketch an appropriate method of joining the handle to the body of the barbecue. Candidates were then unable to justify the reason for their choice of method. Most responded by simply explaining their sketch. Many candidates failed to label the sketch.

(e) This part was generally poorly answered. Most candidates misunderstood the question and answered by relating their answer to individual projects rather than an industrial context.

Focus Area – Multimedia Industries

Question 4

(a) This part was generally well done by candidates. Most candidates demonstrated knowledge of the compression of an image, change of the resolution, or resizing of the image. Some candidates indicated change in colour depth and saving in different file format.

(b) Most candidates described the use of the storyboards. There was a lack of understanding of the difference between purpose and use. Few of the candidates were able to explain the use of storyboards.

(c) Most candidates demonstrated a good understanding of this part. Midi and Waveform were the most popular file formats discussed.

(d) (i) A large number of candidates literally named a task and described how it could be performed. Tasks such as drawing logos, CAD drawings, house plans and detail drawing were often given by candidates.

(ii) This part was well answered by the majority of the candidates. GIFF was the most popular file format, and the candidates knew it could be downloaded quickly and that it required less memory space.

(iii) Most candidates failed to perform well in this part. Although the majority of the candidates started well, they failed to provide a balanced response. Many described bitmap and vector graphics well but lacked the depth of response to memory, image and file size. Very few candidates were able to identify the relationship that exists between memory, image quality and file size, as well as relate these concepts to bitmap and vector graphics.

Question 5

(a) Candidates generally performed well with this part. They were able to name relevant techniques to describe the transformation of the image.

(b) Candidates were generally able to name a relevant port to connect the relevant devices.

(c) (i) The majority of the candidates performed poorly with this part. Candidates failed to describe software and name the file format.

(ii) This part was answered well by the majority of the candidates. The description given by candidates often specifically referred to the use of common software applications such as Photoshop.

(d) (i) There was a range of responses to this part. A large number of candidates provided more than one technique but no examples. This part required a technique with examples. There were very few candidates who named the technique and provided two or more examples.

(ii) Most candidates performed well in this part. Some candidates however, identified only one related issue.

(iii) Many candidates experienced difficulty with the terminology used in the question. The requirement of analysing and discussing issues illustrated a seemingly poor knowledge of the 'glossary of key words' used to develop questions. The majority of the candidates failed to establish relationships of memory, processing speed and resolution to that of different types of computer systems.

Focus Area – Timber and Furniture Products Industries

General Comments

Overall the sketching question was well attempted; however the quality of sketching could be strengthened. Candidates are encouraged to read questions fully before attempting to answer. It would be beneficial for candidates to practice techniques for identifying the various parts of the question, and what is required in their response. Understanding of the glossary of key words must be further enhanced. A greater emphasis needs to put into the teaching and learning of occupational health and safety and environmental issues that are broader than just the school-based environment.

Specific Comments

Question 4

(a) Generally this part was well answered by candidates. However, candidates needed a greater understanding of framing joints.

(b) This part was poorly attempted. Greater focus on clamping methods, with an emphasis on how to keep the frame flat and square while it dries, needed to be addressed.

(c) Candidates performed well in the identification of timber qualities, yet the linking of these qualities to making the mirror frame needed to be further enhanced.

(d) Candidates could identify and justify many safety controls with some reference to occupational health and safety and the environment.

Question 5

The majority of candidates answered this question poorly.

(a) The term 'cabinet hardware fitting' caused confusion. Many responses included dowel, screws, glue etc. Sketches were generally poorly done and inadequately labelled. Knockdown fittings were often not named.

(b) The concept of 'mass-producing' was not fully understood. The written description was generally better than the accompanying diagram. The machinery and tools to produce the cut-out section caused difficulty, indicating a general lack of knowledge.

(c) Candidates had difficulty in comparing MDF to other manufactured boards. Numerous responses referred to solid timber, rather than manufactured boards. Many responses were short, one-word answers without clarification. The term 'discuss' was not fully understood. Often candidates gave properties of MDF without any comparison.

(d) This part was generally well answered by candidates who understood the definition of a cabinet hardware fitting, but a number of responses included reasons without an explanation.

(e) This part was generally poorly answered. The concept of describing a process, ie providing features and characteristics, proved difficult for many candidates. The word 'throughout' was not often picked up and as a result few responses referred to all stages of the production process. Many even had difficulty with the concept of mass production and wrote about making only one unit or discussed mass production in general, without making many references to quality control.

Major Project

Design, Management and Workplace Communication Folio

There was a general improvement in the level of information presented in the folios, with most candidates following the syllabus closely. Overall, there was an improvement in the way candidates presented their folios with a broader range of styles, including computer demonstrations and multimedia used to demonstrate the work that had been carried out during the year. Candidates were using computer and video technology to enhance their presentation.

Most candidates followed the correct criteria, but in some cases not all the criteria were addressed, indicating a lack of knowledge of the current syllabus.

Candidates at some schools showed poor forward planning: timeline plans and finance plans were a record of the management process, not an indication that the candidate was able to successfully plan the processes required to construct their Major Project.

Most candidates were able to relate research to their projects either by using annotations on pamphlets or copying information and following logical discussions on the usefulness of the information. These candidates were able to use this gained information to make informed decisions affecting the project selection, materials or processes for their project. Some candidates had difficulty with research procedures and others considered research to be a collection of pamphlets that were irrelevant and not linked to the project.

A number of candidates were unable to appropriately justify their choices for materials, components or processes. The justification was often simplistic, eg 'it's stronger'.

Many candidates failed to demonstrate their knowledge of the application and use of Occupational Health & Safety principles. Some candidates used safety tests while others were able to show, through photographs and documentation, how occupational health and safety linked to their project. Candidates demonstrated personal protective equipment, safety signage, risk management and the correct use of tools and equipment.

Workplace Communication

There is a degree of misconception regarding the use of computer technology and software in the production of the folio. Some projects had no computer applications at all while others were totally done on the computer with no evidence of sketches or handwritten comments. Candidates must ensure that a range of communication techniques is used in the folio and this must include the use of computer software.

Photographic evidence was lacking in many projects, particularly of 'hidden' detail in joints etc.

Production

In general there was an improvement in the standard of the practical work. During the marking period, a good range of projects was seen, though some candidates made very large and expensive projects. A candidate can demonstrate the skills required in smaller, more manageable projects.

The choice of project is still a concern:

- Some projects showed a limited range of skills but in general most were completed at an HSC level.
- Candidates should not be involved in the manufacture of weapons and associated items of any kind.
- Candidates should not be involved in projects that could contravene child protection issues.
- The assembly of industry-manufactured 'flat pack' projects should be discouraged as it provides limited opportunity for the candidate to showcase their skills. Many candidates are out sourcing parts of their Major Project, so that little is done by them.
- In Graphics, some candidates put more emphasis on models rather than the designing and drawing.
- Multimedia projects should be carefully selected to accommodate required levels of computer technology. Some candidates' projects did not operate during marking because they had been developed offsite on computers with superior capabilities.

- It is preferable that Automotive Industries projects that involve the construction or reconditioning of an engine must be operable. Similarly Electronics Industries projects that involve the use of 240 volts must have an electrician certify their safety.

Evaluation in many cases was not carried out during the construction of the project. In many cases the evaluations were done after the project was finished and these were generally poorly done. Overall the better quality projects displayed required evaluation processes and procedures.

Industrial Technology—
Automotive Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a)	2	Industry-specific content and production – Power sources, Engine and related systems, Chassis and related components	H1.2
4 (b) (i)	2	Industry-specific content and production – Power sources, Engine and related systems	H1.2, H5.1
4 (b) (ii)	4	Industry-specific content and production – Power sources, Engine and related systems	H1.2, H5.1
4 (c)	5	Industry-specific content and production – Power sources, Engine and related systems	H1.2, H5.1
4 (d)	7	Industry-specific content and production – Power sources, Engine and related systems, Automotive design, Government and statutory regulations	H1.2, H5.1
5 (a)	2	Industry-specific content and production – Chassis and related components	H1.2
5 (b)	3	Industry-specific content and production – Chassis and related components	H1.2, H4.3
5 (c) (i)	3	Industry-specific content and production – Chassis and related components	H1.2, H4.3
5 (c) (ii)	4	Industry-specific content and production – Chassis and related components	H1.2, H4.3
5 (d)	8	Industry-specific content and production – Chassis and related components	H1.2, H4.3, H6.1

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

BOARD OF STUDIES
NEW SOUTH WALES

2001 HSC Industrial Technology
Automotive Industries
Marking Guidelines

Major Project

HSC Examination Overview

The HSC examination for Industrial Technology consists of a written paper worth 40 marks and a major project worth 60 marks.

Component: Management Folio (20 marks)

This component of the major project should be a 'documentary' of the development of the project, including the original intent, research, planning, decisions, problems and their solution, and ongoing evaluation of their major project in the light of their original intent.

Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Automotive Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services.	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• 2 correct responses	2
• 1 correct response	1

Question 4 (b) (i) (2 marks)

Outcomes assessed: H1.2, H5.1

MARKING GUIDELINES

Criteria	Marks
• Shows understanding of need to vapourise fuel, mix with air, and that mix ratio is important	2
• Mentions need for petrol/air mix. No mention of correct ratio	1

Question 4 (b) (ii) (4 marks)

Outcomes assessed: H1.2, H5.1

MARKING GUIDELINES

Criteria	Marks
• A detailed description showing a clear understanding of the differences between each system	4
• Two significant descriptive points about one of the two systems, and one significant descriptive point about the other OR • A good description of one system, with a poor generalised description of the other	3
• Correct description of only the carburettor OR • Only the injector OR • One significant point about each OR • A good description of only one system	2
• A poor generalised description such as "they provide fuel for the engine" or "feed fuel to the manifold" OR • One significant description about either system	1

Question 4 (c) (5 marks)

Outcomes assessed: H1.2, H5.1

MARKING GUIDELINES

Criteria	Marks
• A detailed explanation covering the five significant stages of a carburettor on a conventional four-stroke engine OR • A detailed explanation supported with additions to the diagram to illustrate understanding	5
• A good general explanation – not fully detailed with four significant points made	4
• Three significant points made • An explanation that shows understanding but without detail	3
• Two significant points made in explanation OR • A poor generalised explanation showing some understanding but lacking detail i.e. "Venturi causes reduced pressure which draws fuel in"	2
• One significant point made ie "causes air and fuel to mix"	1

Question 4 (d) (7 marks)

Outcomes assessed: H1.2, H5.1

MARKING GUIDELINES

Criteria	Marks
• An analysis written logically, fluently and making significant points relating to regulations in all three areas mentioned, and the effects these regulations lead to	7
• A description of two of the areas mentioned and the consequent effects, with a generalised description of the other one.	5–6
• A description of one of the areas mentioned with consequent effects, with a brief generalised mention of one of the others	3–4
• A minimal outline of the effect of regulation on automobiles. No specific reference to the areas indicated, no reference to effects	1–2

Question 5 (a) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• 2 correct responses, or a descriptive statement showing knowledge of both components	2
• 1 correct response, or brief statement identifying one component	1

Question 5 (b) (3 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Names correct cause, with short description of how adjustment is made	3
• Name the cause, and need to adjust but without reference to how	2
• Correct name, no description	1

Question 5 (c) (i) (3 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• A detailed explanation, showing knowledge and understanding of the relationships between the components of the system works • Specific reference to 'primary' and 'secondary' circuits	3
• Response relating to explanation of "how" but without reference to the two circuits • Only two significant points listed	2
• A basic generalised explanation – "hydraulic brakes" or "power brakes" • One significant point made or only reference to the "dual circuit"	1

Question 5 (c) (ii) (4 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• A outline including reference to removing brake drum, removing springs and clips and removing shoes, together with detail of replacement order • Reference to tools used	4
• An outline with no reference to tools used • Three significant correct parts of the process listed	3
• A short generalised outline on replacement without reference to tools • Two significant correct parts of process listed	2
• A list of tools • A poor generalised outline without any specific detail eg "remove brake drum and replace the brake shoes"	1

Question 5 (d) (8 marks)

Outcomes assessed: H1.2, H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• A well written, well structured logical comparison incorporating a range of points relevant to the effectiveness of drum and disc brakes	7–8
• A good comparative response, showing good understanding but limited to a few relevant points of comparison	5–6
• A generalised response indicating one or two points of comparison, but not detailed eg. "Disk brakes have balanced loads, but drum brakes do not. The drum distorts because of this"	3–4
• A poor generalised response not involving a comparison eg "Drum brakes suffer from brake fade". No reasoning included	1–2

Industrial Technology—
Building and Construction Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a)	2	Industry-specific content and production	H3.1
4 (b)	4	Industry-specific content and production	H4.3
4 (c)	6	Industry-specific content and production	H4.3
4 (d)	8	Industry-specific content and production	H4.3, H6.1
5 (a) (i)	1	Industry-specific content and production	H4.3
5 (a) (ii)	1	Industry-specific content and production	H4.3
5 (b) (i)	1	Industry-specific content and production	H1.2, H4.3
5 (b) (ii)	3	Industry-specific content and production	H4.3
5 (c)	5	Industry-specific content and production	H4.3, H6.1
5 (d)	9	Industry-specific content and production	H4.3, H6.1, H7.1

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

BOARD OF STUDIES
NEW SOUTH WALES

2001 HSC Industrial Technology
Building and Construction Industries
Marking Guidelines

Major Project

HSC Examination Overview

The HSC examination for Industrial Technology consists of a written paper worth 40 marks and a major project worth 60 marks.

Component: Management Folio (20 marks)

This component of the major project should be a 'documentary' of the development of the project, including the original intent, research, planning, decisions, problems and their solution, and ongoing evaluation of their major project in the light of their original intent.

Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Building and Construction Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services.	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (2 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Correctly labels all four items on the sketch	2
• Correctly labels any two items on the sketch	1

Question 4 (b) (4 marks)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of four appropriate criteria	4
• Provides characteristics and features of three appropriate criteria	3
• Provides characteristic and features of two appropriate criteria OR • Names four appropriate criteria	2
• Provides characteristics and features of one appropriate criteria OR • Names two appropriate criteria	1

Question 4 (c) (6 marks)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Clearly relates, using a range of appropriate examples, the minimum fire standards (Building Code) to both design and construction features	5–6
• Describes, using examples, several design and/or construction features related to fire • Little or no linkage evident to Building Code	3–4
• Lists one or two design and/or construction features that relate to fire	1–2

Question 4 (d) (8 marks)

Outcomes assessed: H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identifies a range of issues/examples illustrating how standardisation has increased efficiency • Discussion demonstrates a broad knowledge of building and construction industries and factors affecting efficiency	7–8
• Identifies a range of issues/examples of standardisation • Several of these are related to efficiency	5–6
• Identifies several issues/examples illustrating standardisation • Vague references/linkage to efficiency	3–4
• Lists one or two issues/examples of standardisation, with no linkage to increased efficiency	1–2

Question 5 (a) (i) (1 mark)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Links steel-reinforcing to tensile strength	1

Question 5 (a) (ii) (1 mark)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Identifies one form or reinforcing steel used in concrete floor slabs	1

Question 5 (b) (i) (1 mark)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Gives valid reason for elevation of floor level	1

Question 5 (b) (ii) (3 marks)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Relates key advantage of weatherboard rather than brick AND • Links this to site and/or area	3
• Relates one advantage of weatherboard rather than brick AND • Links to site/area	2
• Lists one advantage, such as 'heat', 'cost', 'appearance'	1

Question 5 (c) (5 marks)

Outcomes assessed: H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identifies several appropriate different internal lining materials • Relates their appropriate use (ie where used) timber-framed or steel-framed houses.	5
• Identifies two appropriate different internal lining materials • Relates the appropriate use of both of these linings in timber-framed or steel-framed houses	4
• Identifies two appropriate different internal lining materials • Generalised answer not clearly used in linking ALL to appropriate use in framed houses	3
• Identifies two different internal lining materials OR • Identifies one material and suggests appropriate use in framed house	2
• Identifies one appropriate internal lining material in timber-framed or steel-framed houses	1

Question 5 (d) (9 marks)

Outcomes assessed: H4.3, H6.1, H7.1

MARKING GUIDELINES

Criteria	Marks
• Detailed answer giving range of issues/factors/criteria and comparing both advantages and disadvantages of timber and steel in each factor/issue • Answer shows broad knowledge of BOTH housing industry and properties of timber and steel as framing materials	7–9
• Gives several advantages and disadvantages of timber and steel a framing materials, but does as using a limited range of properties/factors/criteria	5–6
• Components timber and steel as framing materials, with only one or two properties/features examined in detail.	3–4
• Lists one or two advantages or disadvantages of either timber or steel – no discussion.	1–2

Industrial Technology—
Electronics Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a) (i)	2	Industry-specific content and production – Electrical principles	H3.1
4 (a) (ii)	2	Industry-specific content and production – Electrical principles	H1.2
4 (b) (i)	3	Industry-specific content and production – Electrical principles	H3.1
4 (b) (ii)	4	Industry-specific content and production – Electrical principles	H4.3
4 (c)	9	Industry-specific content and production – Instruments and test equipment	H1.2, H5.2
5 (a) (i)	1	Industry-specific content and production – Electrical principles	H4.3
5 (a) (ii)	2	Industry-specific content and production – Electrical principles	H4.3
5 (b)	4	Industry-specific content and production – Electrical principles	H4.3
5 (c)	4	Industry-specific content and production – Processes	H1.2, H4.3
5 (d)	9	Industry-specific content and production – Processes	H1.2, H2.1, H4.3

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

BOARD OF STUDIES
NEW SOUTH WALES

2001 HSC Industrial Technology
Electronics Industries
Marking Guidelines

Major Project

HSC Examination Overview

The HSC examination for Industrial Technology consists of a written paper worth 40 marks and a major project worth 60 marks.

Component: Management Folio (20 marks)

This component of the major project should be a 'documentary' of the development of the project, including the original intent, research, planning, decisions, problems and their solution, and ongoing evaluation of their major project in the light of their original intent.

Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Electronics Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (i) (2 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• 2 correctly inserted terms	2
• 1 correctly inserted term or correct terms 'back-to-front' OR • 1 correct term in wrong place	1

Question 4 (a) (ii) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Correct name plus an explanation that relates how a parallel connection reduces total resistance	2
• Correct name OR • Incorrect name with valid description	1

Question 4 (b) (i) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• 3 correct responses	3
• 2 correct responses OR • 3 correct responses but inappropriate hook up of transistor	2
• 1 correct response	1

Question 4 (b) (ii) (4 marks)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• A well structured detailed, and logical explanation that makes the relationship between Switch S_1 being turned on and as consequences clear	4
• An explanation that recognises that above a certain temperature the motor will start, but recognising that the temperature at which this happens can be set	2–3
• When S_1 is turned on above a given temperature the motor starts	1

Question 4 (c) (9 marks)

Outcomes assessed: H1.2, H5.2

MARKING GUIDELINES

Criteria	Marks
• A well written justification that outlines the process, justifies the strategy, refers to equipment and relates to time v cost savings	9
• A well written justification that outlines the process, justifies the strategy, mentions some equipment but does not show how this saves time, cost	7–8
• A good response indicating that a motherboard is very complex and would be tested using computer methods, but without reference to special setups or little justification	5–6
• A basic response, with general reference to equipment (a computer does a test) and some justification • A response based on a generalistion of manual testing	3–4
• A basic response that shows some understanding without reference to particular equipment v shows no justification ie ‘testing active and passive components.’	1–2

Question 5 (a) (i) (1 mark)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Correct name	1

Question 5 (a) (ii) (2 marks)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Correct description of the component AND how it affects the signal flow	2
• Correct description of the component OR how it affects the signal flow	1

Question 5 (b) (4 marks)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Identifies/describes potential difference and its relationship to current flow	4
• Identifies/describes potential difference and an explanation of current	2–3
• Identifies/describes potential difference in basic terms OR a brief explanation of current	1

Question 5 (c) (4 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• 1 method and complete description	4
• 1 method and incomplete description	3
• 1 method and brief description	2
• 1 method	1

Question 5 (d) (9 marks)

Outcomes assessed: H1.2, H2.1, H4.3

MARKING GUIDELINES

Criteria	Marks
• A well structured well written analysis, includes advantages and disadvantages, and mentions relevant OH&S issues together with personal protection	9
• An analysis that includes advantages and disadvantages, but with only a general reference to OH&S or personal protection	7–8
• A response listing a few advantages and disadvantages, and only refers to personal protection rather than other OH&S issues	5–6
• Answer names examples of chemicals mentions only advantages or disadvantages, or only mentions one advantage and one disadvantage. A generalised safety current is included	3–4
• A very limited response in general terms, without any advantages or disadvantages. Possible reference to safety protection. No examples. Eg'Chemicals are used to etch circuit boards and you should wear gloves	1–2

Industrial Technology—
Graphics Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a)	2	Industry-specific content and production	H3.1
4 (b)	3	Industry-specific content and production	H1.2, H3.1, H5.1
4 (c)	6	Industry-specific content and production	H1.2, H3.1, H5.1, H5.2
4 (d)	9	Industry-specific content and production	H1.2, H3.1, H5.1, H5.2
5 (a)	2	Industry-specific content and production	H3.1
5 (b)	2	Industry-specific content and production	H1.2, H3.1, H4.3
5 (c) (i)	2	Industry-specific content and production	H1.2, H4.3, H6.1
5 (c) (ii)	2	Industry-specific content and production	H1.2, H4.3, H6.1
5 (d)	4	Industry-specific content and production	H1.2, H4.3, H5.1, H6.1
5 (e)	8	Industry-specific content and production	H1.2, H4.3, H5.1, H6.1

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

BOARD OF STUDIES
NEW SOUTH WALES

2001 HSC Industrial Technology
Graphics Industries
Marking Guidelines

Major Project

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Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Graphics Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (2 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Two correct responses	2
• One correct response	1

Question 4 (b) (3 marks)

Outcomes assessed: H1.2, H3.1, H5.1

MARKING GUIDELINES

Criteria	Marks
• Provides three features of sectional drawings that show how the drawings assist in the manufacturing process	3
• Provides a feature of sectional drawings that shows how the drawings assist in the manufacturing process	2
• Provides a feature of sectional drawings that is unrelated to the manufacturing process	1

Question 4 (c) (6 marks)

Outcomes assessed: H1.2, H3.1, H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Provides detailed reasons for the use of AS1100 drawing standards AND makes reference to projection methods AND dimensioning AND use of symbols	5–6
• Provides reasons for the use of AS1100 drawing standards AND makes reference to projection methods OR dimensioning OR use of symbols	3–4
• Provides a simple explanation of AS1100 drawing standards without making reference to projection methods OR dimensioning OR use of symbols	1–2

Question 4 (d) (9 marks)

Outcomes assessed: H1.2, H3.1, H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Compares marketing sketch with tradesperson drawings in terms of accuracy, detail, dimensions and conformity with drawing standards, table of specifications • Gives several valid reasons for the need for these features in drawings produced for a tradesperson • Explains why these features are not required for a marketing sketch • Determines features of a marketing sketch not required for tradesperson drawing eg. glossy pamphlet, presence of people enjoying pergola, accessories etc.	7–9
• Compares marketing sketch and drawings for tradesperson in terms of several of: accuracy, detail, dimensions and conformity with drawing standards • Gives valid reasons for the need for these features in drawing produced for tradesperson • Indicates that these features are not required for a marketing sketch	5–6
• Compares marketing sketch and drawings in terms of one of: accuracy, detail, dimensions or conformity to drawing standards • Gives general answer to justify why tradesperson requires these	3–4
• Lists one or two differences between marketing graphics and tradespersons' drawings	1–2

Question 5 (a) (2 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Identifies both projections	2
• Identifies one projection	1

Question 5 (b) (2 marks)

Outcomes assessed: H1.2, H3.1, H4.3

MARKING GUIDELINES

Criteria	Marks
• A description making two benefits relevant to the question clear	2
• A very generalised description using broad based examples eg computer graphics can use rotation • One well described benefit	1

Question 5 (c) (i) (2 marks)

Outcomes assessed: H1.2, H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Explanation with clear reasons	2
• Brief explanation making one point	1

Question 5 (c) (ii) (2 marks)

Outcomes assessed: H1.2, H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Detailed explanation	2
• Brief outline of affect	1

Question 5 (d) (4 marks)

Outcomes assessed: H1.2, H4.3, H5.1, H6.1

MARKING GUIDELINES

Criteria	Marks
• 2 techniques – well described with detail	4
• 2 techniques – little detail	3
• 1 technique – little detail	2
• 1 technique	1

Question 5 (e) (8 marks)

Outcomes assessed: H1.2, H4.3, H5.1, H6.1

MARKING GUIDELINES

Criteria	Marks
• Compares, contrasts with good descriptions	7–8
• Compares with a good description of showing differences with benefits of one over another	5–6
• Compares types of media/software/hardware	3–4
• Names media and/or software programs and /or hardware	1–2

Industrial Technology—
Metals and Engineering Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a) (i)	2	Industry-specific content and production – Process/tools/machinery	H1.2
4 (a) (ii)	2	Industry-specific content and production – Process/tools/machinery	H1.2
4 (a) (iii)	3	Industry-specific content and production – Process/tools/machinery	H1.2
4 (a) (iv)	4	Industry-specific content and production – Process/tools/machinery	H1.2, H3.1, H5.1
4 (b)	9	Industry-specific content and production – Process/tools/machinery	H1.2, H3.1, H5.1, H5.2
5 (a)	2	Industry-specific content and production – Process/tools/machinery	H1.2
5 (b)	2	Industry-specific content and production – Process/tools/machinery	H1.2
5 (c)	4	Industry-specific content and production – Materials	H1.2
5 (d)	3	Industry-specific content and production – Quality control/materials	H3.1, H4.3
5 (e)	9	Industry-specific content and production – Processes, tools and machinery	H1.2, H4.3, H6.1

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

BOARD OF STUDIES
NEW SOUTH WALES

2001 HSC Industrial Technology
Metals and Engineering Industries
Marking Guidelines

Major Project

HSC Examination Overview

The HSC examination for Industrial Technology consists of a written paper worth 40 marks and a major project worth 60 marks.

Component: Management Folio (20 marks)

This component of the major project should be a 'documentary' of the development of the project, including the original intent, research, planning, decisions, problems and their solution, and ongoing evaluation of their major project in the light of their original intent.

Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Metals and Engineering Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (i) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Identify 2 advantages of using mild steel tube for the fitness machine	2
• Identify 1 advantage of using mild steel tube for the fitness machine	1

Question 4 (a) (ii) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Names process and provides characteristics and features of an industrial process used to manufacture the pull down bar	2
• Names the process with little description of the manufacturing process	1

Question 4 (a) (iii) (3 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Explanation of a method of joining the base frame components together to enable the unit to be assembled/disassembled. There must be a statement on safety	3
• Explanation of a joining method to enable the unit to be disassembled without referring to safety OR • Names a method of assembly/disassembly and refers to safety	2
• Names a correct joining method OR • Refers to assembly/disassembly OR • Refers to safety	1

Question 4 (a) (iv) (4 marks)

Outcomes assessed: H1.2, H3.1, H5.1

MARKING GUIDELINES

Criteria	Marks
• Provides name and description of the application and justification for the use of a suitable industrial finish	4
• Provides name and describes the application of a suitable industrial finish without giving reasons for the choice	3
• Provides name and a poor description of the application of a suitable industrial finish OR • Provides a name of a suitable industrial finish and gives a valid reason for its choice	2
• Provides the name of a suitable industrial finish	1

Question 4 (b) (9 marks)

Outcomes assessed: H1.2, H3.1, H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• A detailed analysis of how companies would evaluate the product through all stages of its development. Refers to Australian Safety Standards	9
• An analysis of how companies would evaluate the product through at least two stages in its development. Refers to Australian Safety Standards	7–8
• An understanding of how products are evaluated in at least two stages of design and production with some reference to Safety Standards	5–6
• A basic understanding of product evaluation in at least one stage with some reference to Safety Standards	3–4
• A basic understanding of product evaluation OR • Makes a statement referring to safety standards	1–2

Question 5 (a) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Identifies two reasons why the legs of the barbecue are pinned using mild steel brackets (and rivets)	2
• Identifies one reason why the legs of the barbecue are joined using mild steel brackets and nuts/bolts	1

Question 5 (b) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Description of at least two industrial processes that relate to forming mild-steel hotplate	2
• Names one process only	1

Question 5 (c) (4 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Names a material with one explanation of why the properties and characteristics of this material make it suitable for a BBQ hotplate	4
• Names a material with an explanation of one property and one characteristic that makes it suitable for a BBQ hot plate	3
• Names of material with some explanation of one property or characteristic	2
• Names a suitable material OR • States two properties	1

Question 5 (d) (3 marks)

Outcomes assessed: H3.1, H4.3

MARKING GUIDELINES

Criteria	Marks
• A clear sketch showing the assembly method with an explanation justifying the method used. Sketch must be labelled	3
• A basic sketch showing the assembly method with some justification or explanation of the method used	2
• A poor sketch and poor explanation OR • A poor generalised outline without any specific detail OR • Justification only	1

Question 5 (e) (9 marks)

Outcomes assessed: H1.2, H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Justification and understanding of how design, quality control and manufacturing processes are integrated in mass production	9
• Explains design, quality control and manufacturing processes that could be used to manufacture the BBQ	7–8
• Shows an understanding of the relationship between any two of: quality control, design and manufacturing processes	5–6
• Shows a basic understanding of how design or quality control or manufacturing processes are carried out when a product is being mass produced	3–4
• Shows a basic understanding of how a product is mass produced	1–2

Industrial Technology—
Multimedia Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a)	2	Industry-specific content and production	H1.2
4 (b)	2	Industry-specific content and production	H1.2, H3.1, H4.3
4 (c)	3	Industry-specific content and production	H1.2
4 (d) (i)	2	Industry-specific content and production	H1.2
4 (d) (ii)	2	Industry-specific content and production	H1.2
4 (d) (iii)	9	Industry-specific content and production	H1.2, H5.1
5 (a)	1	Industry-specific content and production	H1.2, H4.3
5 (b)	1	Industry-specific content and production	H1.2, H4.3
5 (c) (i)	3	Industry-specific content and production	H1.2, H4.3
5 (c) (ii)	2	Industry-specific content and production	H1.2, H4.3
5 (d) (i)	2	Industry-specific content and production	H1.2, H5.1
5 (d) (ii)	2	Industry-specific content and production	H4.3
5 (d) (iii)	9	Industry-specific content and production	H1.2, H4.3, H5.1

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

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2001 HSC Industrial Technology
Multimedia Industries
Marking Guidelines

Major Project

HSC Examination Overview

The HSC examination for Industrial Technology consists of a written paper worth 40 marks and a major project worth 60 marks.

Component: Management Folio (20 marks)

This component of the major project should be a 'documentary' of the development of the project, including the original intent, research, planning, decisions, problems and their solution, and ongoing evaluation of their major project in the light of their original intent.

Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Multimedia Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• 2 techniques identified	2
• 1 technique identified	1

Question 4 (b) (2 marks)

Outcomes assessed: H1.2, H3.1, H4.3

MARKING GUIDELINES

Criteria	Marks
• Explanation of how storyboards are used in planning and representing multimedia or other presentations – emphasises representational purpose	2
• Brief description/outline of what storyboards are	1

Question 4 (c) (3 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Names one audio format • Provides detailed characteristics and features of the named format	3
• Names one audio format • Provides a general description of this named format – few details of characteristics and features	2
• Names one audio format eg ‘midi’	1

Question 4 (d) (i) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of a task (eg rotating) that is more easily performed using vector-based software	2
• Names a task that is more easily performed with vector-based software – eg resizing, rotating	1

Question 4 (d) (ii) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Names a suitable graphics file format eg JPEG • Supports this choice with a valid reason for its suitability	2
• Names a suitable graphics file format eg JPEG	1

Question 4 (d) (iii) (9 marks)

Outcomes assessed: H1.2, H5.1

MARKING GUIDELINES

Criteria	Marks
• Well structured answer demonstrating clear, detailed knowledge of 3 components (memory, image quality and file size) of both vector and bitmap formats • Relationships between memory/image/file size drawn out for both file formats	7–9
• Both bitmap and vector formats described, with differences that link to more than one component (memory, image quality, file size) drawn out	5–6
• Description of bitmap and/or vector formats with some linkage to a component (memory, image quality of file size)	3–4
• Basic description of bitmap and/or vector formats with no link/relationship to 3 components	1–2

Question 5 (a) (1 mark)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Names technique	1

Question 5 (b) (1 mark)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Names a valid input/output port	1

Question 5 (c) (i) (3 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Provides main features of scanner operation, software settings, saving procedures, and file types	3
• Some appropriate features given eg scanner operation and software settings. Incomplete description	2
• Basic description ie place in scanner and save to hard disk	1

Question 5 (c) (ii) (2 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Select correct tool eg eraser • Process of using tools to erase detail	2
• Gives a tool only or vague description without reference to specific tools or techniques	1

Question 5 (d) (i) (2 marks)

Outcomes assessed: H1.2, H5.1

MARKING GUIDELINES

Criteria	Marks
• Names a multimedia technique and gives well chosen examples to illustrate the relationship with enhancing a presentation	2
• Names a multimedia technique with brief description – no clear explanation of how the presentation is enhanced, nor examples given	1

Question 5 (d) (ii) (2 marks)

Outcomes assessed: H4.3

MARKING GUIDELINES

Criteria	Marks
• Gives 2 appropriate ethical issues that need to be considered	2
• Gives 1 appropriate ethical issue	1

Question 5 (d) (iii) (9 marks)

Outcomes assessed: H1.2, H4.3, H5.1

MARKING GUIDELINES

Criteria	Marks
• Well structured answer making the relationship between memory size/processing speed and resolution and the display of a multimedia presentation clear • Range of relevant issues are identified and related to display	7–9
• Memory size/processing speed and resolution are described and individually related to display • Little evidence of interrelationships between 3 components	5–6
• Aspects of memory size/processing speed or resolution are described, with general description of effect upon a multimedia display • Some knowledge of 3 components evident	3–4
• Basic description of effect of either memory size/processing speed or resolution on the display of multimedia presentation	1–2

Industrial Technology—
Plastics Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a)	2	Industry-specific content and production	H1.2
4 (b)	3	Industry-specific content and production	H1.2, H2.1, H4.3
4 (c) (i)	4	Industry-specific content and production	H1.2
4 (c) (ii)	3	Industry-specific content and production	H1.2
4 (d)	8	Industry-specific content and production	H1.2, H3.1, H6.2
5 (a)	2	Industry-specific content and production	H1.2, H4.3
5 (b)	3	Industry-specific content and production	H1.2, H4.3
5 (c)	6	Industry-specific content and production	H1.2, H4.3
5 (d)	9	Industry-specific content and production	H1.2, H2.1, H4.3, H6.1

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

BOARD OF STUDIES
NEW SOUTH WALES

2001 HSC Industrial Technology
Plastics Industries
Marking Guidelines

Major Project

HSC Examination Overview

The HSC examination for Industrial Technology consists of a written paper worth 40 marks and a major project worth 60 marks.

Component: Management Folio (20 marks)

This component of the major project should be a 'documentary' of the development of the project, including the original intent, research, planning, decisions, problems and their solution, and ongoing evaluation of their major project in the light of their original intent.

Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Plastics Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (2 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Both tools correctly identified	2
• One tool correctly identified	1

Question 4 (b) (3 marks)

Outcomes assessed: H1.2, H2.1, H4.3

MARKING GUIDELINES

Criteria	Marks
• Provides features of three appropriate safety precautions	3
• Provides features of two appropriate safety precautions	2
• Provides features of two appropriate safety precautions OR • Lists three safety precautions (ie no description)	1

Question 4 (c) (i) (4 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Names a suitable polymer • Gives clear description, step by step, of the process of fabricating the tray • Uses appropriate terms for process and features	4
• Names a suitable polymer • Provides some features (incomplete) of fabricating the tray OR • Gives a clear description, using appropriate terminology, step by step, of the processes of fabricating the tray • Provides some features (incomplete) of fabricating the tray	2–3
• Names a suitable polymer OR • Gives one step or generalised description of process of fabricating the tray	1

Question 4 (c) (ii) (3 marks)

Outcomes assessed: H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides the features of each step in applying suitable quality edge finish	3
• Provides incomplete description of the steps in applying suitable quality edge finish omits step	2
• Generalised answer with simplistic process, such as 'paint' or 'polish'	1

Question 4 (d) (8 marks)

Outcomes assessed: H1.2, H3.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Provides detailed description of the steps in the vacuum forming process, in order • Uses clear labelled sketches to clarify description where appropriate • Description includes types, applications and quality	7–8
• Describes the steps in the vacuum forming process. Some steps may be unordered • Sketch relates to and supplements description	5–6
• Describes some steps in the vacuum forming process • Provides sketch which may not be detailed/clear/labelled or relate to description	3–4
• Lists one or two parts/steps of the vacuum forming process • Gives unlabelled, under sketch	1–2

Question 5 (a) (2 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Lists two valid properties of glass-reinforced plastic that make it suitable for the manufacture of the shower enclosure	2
• Lists one valid property of glass-reinforced plastic that make it suitable for the manufacture of the shower enclosure	1

Question 5 (b) (3 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Gives clear explanation of the construction process, marking reasons/purpose of each step clear	3
• Provides a description of most of the steps of the construction process – some steps unworded or omitted	2
• Lists one step of the construction process	1

Question 5 (c) (6 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Provides detailed characteristics of method that could be used to repair crack, including preparation of surface materials and solvent used in repair process	5–6
• Provides most of the required features (preparation/materials and solvent repair process) with some omissions or inaccuracies	3–4
• Lists one or two materials OR • Gives features of preparation process OR • Gives features (one or two steps) of the repair process	1–2

Question 5 (d) (9 marks)

Outcomes assessed: H1.2, H2.1, H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identifies a range of both environmental and OH&S controls • Identifies issues for and/or against such controls, using appropriate plastics industries knowledge and technology	7–9
• Identifies several environmental AND OH&S controls • Gives detailed descriptions of these controls without clearly identifying issues for/against	5–6
• Identifies one or two environmental or OH&S controls • Describes some aspects of these controls with providing reasons for and/or against	3–4
• Identifies one or two environmental or OH&S controls	1–2

Industrial Technology—
Timber Products and Furniture Industries

2001 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1 (a)	8	Industry study – Structural factors	H1.2, H6.1
1 (b)	2	Industry study – Structural factors	H1.1
1 (c)	2	Industry study – Structural factors	H1.1
1 (d) (i)	4	Industry study – Technical factors	H1.1, H1.2
1 (d) (ii)	4	Industry study – Structural factors	H1.1, H1.2, H6.1, H6.2
2 (a)	2	Industry study – Structural factors	H1.1
2 (b) (i)	2	Industry study – Personnel issues	H1.1
2 (b) (ii)	4	Industry study – Personnel issues	H1.1
2 (c)	6	Industry study – Technical factors	H5.1, H5.2
2 (d)	6	Industry study – Personnel issues	H1.1
3 (a) (i)	1	Workplace communication – Graphics	H3.1
3 (a) (ii)	3	Workplace communication – Graphics	H3.1
3 (a) (iii)	2	Workplace communication – Graphics	H2.1
3 (a) (iv)	2	Workplace communication – Graphics	H2.1
3 (b) (i)	9	Workplace communication – Literacy/Graphics	H5.1, H5.2
3 (b) (ii)	3	Workplace communication – Calculations	H5.2
Section II			
4 (a)	2	Industry-specific content and production – Processes, tools and machinery	H3.1, H4.3
4 (b)	4	Industry-specific content and production – Processes, tools and machinery	H1.2, H4.3
4 (c)	5	Industry-specific content and production – Materials	H4.3, H6.1
4 (d)	9	Industry-specific content and production – Processes, tools and machinery	H2.1, H5.2
5 (a)	2	Industry-specific content and production – Materials	H3.1, H4.3
5 (b)	4	Industry-specific content and production – Processes, tools and machinery	H6.1
5 (c)	3	Industry-specific content and production – Materials	H1.2, H3.3, H6.1
5 (d)	3	Industry-specific content and production – Materials	H4.2, H4.3
5 (e)	8	Industry-specific content and production – Processes, tools and machinery	H1.2, H6.1, H6.2

Major Project			
Component	**Marks**	**Criteria**	**Syllabus outcomes**
Folio	20	Design and Management Workplace Communication	H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2
Product	40	Production	H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

BOARD OF STUDIES
NEW SOUTH WALES

2001 HSC Industrial Technology
Timber Products and Furniture Industries
Marking Guidelines

Major Project

HSC Examination Overview

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Component: Management Folio (20 marks)

This component of the major project should be a 'documentary' of the development of the project, including the original intent, research, planning, decisions, problems and their solution, and ongoing evaluation of their major project in the light of their original intent.

Assessment criteria

Design and management

- statement of intent
- research
- development of ideas
- selection and justification of materials, components, processes and other resources
- timeline plan – projected order of production and estimate of time allocation
- finance plan – projected cost of materials and services (if applicable)
- use of appropriate industrial processes and equipment
- evidence of safe working practices and OH&S issues

Workplace communication

Documentation of the major project from conception to completion including:

- evidence of ongoing evaluation
- appropriateness of design and/or design modification
- student's evaluation of the major project and its relationship to the statement of intent
- evidence of a range of communication techniques
- evidence of a range of computer applications, eg word processing, spreadsheets, CAD, multimedia

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.2, H4.3, H5.1, H5.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining clearly what is to be achieved and why • Describes a wide range of research conducted, which is relevant to the intent of the major project • Analyses and evaluates the development and modification of the major project design ideas • Justifies the selection of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates a comprehensive and appropriate timeline and finance plan • Demonstrates the use of a wide range of appropriate safe working practices through photographic or written evidence **Workplace Communication** • Critically evaluates the major project, in relation to the statement of intent, during the planning and construction phases • Assesses the relationship between the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a wide range of communication techniques, including computer applications appropriate to the development of the major project	17 – 20

Criteria	Marks
Design and Management • Clarifies the intent of the major project by explaining what is to be achieved and why • Describes research conducted, most of which is relevant to the intent of the major project • Describes the development and modification of the major project design ideas • Describes the selection and use of appropriate materials, components, processes, including industrial processes and equipment, and other resources in the development of the major project • Formulates an appropriate timeline and finance plan • Demonstrates the use of some appropriate safe working practices through photographic or written evidence **Workplace Communication** • Documents the major project during the planning and construction phases, and relates the major project to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates a range of communication techniques, including some computer applications, most of which are appropriate to the development of the major project Candidates may achieve 13 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	13 – 16

Criteria	Marks
Design and Management • Gives a brief description of what is to be achieved and why • Describes research conducted, some of which is relevant to the intent of the major project • Describes some aspects of the development and modification of the major project design ideas • Lists materials, components, processes, including simple industrial processes and equipment, and other resources in the development of the major project • Proposes a basic timeline and finance plan for aspects of project production • Demonstrates the use of one or two safe working practices through photographic or written evidence **Workplace Communication** • Basic documentation of the major project during the planning and/or construction phases, with references to the statement of intent • Includes details of the design, and modifications if applicable, materials, components and processes in the development of the major project • Demonstrates some communication techniques, including limited computer applications, appropriate to the development of the major project Candidates may achieve 9 – 12 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 12

Criteria	Marks
Design and Management • Gives a brief or incomplete description of what is to be achieved • Minimal reference to appropriate research conducted • Briefly describes some aspect of the development and modification of the major project design ideas • Lists some of the materials, components, processes and other resources in the development of the major project • Timelines and finance plans are without sufficient detail • Refers to the use of a safe working practice **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Lists some details of the design, materials, components and processes in the development of the major project • Demonstrates few communication techniques, including a computer application, which are appropriate to the development of the major project Candidates may achieve 5 – 8 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	5 – 8
Design and Management • Gives an incomplete description of what is to be achieved • Appropriate research not evident • Minimal description of the development and modification of the major project design ideas • Lists some of the materials, components, simple processes and other resources in the development of the major project • Timelines and finance plans are either not appropriate or not evident • No reference to the use of safe working practices **Workplace Communication** • Minimal documentation of the major project during the planning and/or construction phases • Details of the design, materials, components and processes in the development of the major project not evident • Minimal evidence of communication techniques, including computer applications, appropriate to the development of the major project Candidates may achieve 1 – 4 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 4

Component: Production (40 marks)

The major project product provides practical evidence of the student's level of achievement in their chosen focus area. Of particular relevance will be the range and depth of skills and knowledge evident in choosing materials and technologies, executing processes and solving problems.

Assessment criteria

- quality of the product
- evidence of a range of skills
- degree of difficulty
- links between planning and production
- evidence of industrial processes
- use of appropriate materials
- use of industrial technologies
- evidence of solutions to problems in production

Outcomes assessed: H1.2, H2.1, H3.1, H3.2, H3.3, H4.1, H4.2, H4.3, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates very high quality in all aspects of the major project production • A highly demanding project, with evidence of high quality in the application of a wide range of skills and techniques in the planning and production of the major project • Completed project relates closely to what was intended. Close links between actual construction processes, management and thorough research and planning are evident and clearly articulated • Demonstrates and describes the use of a wide range of appropriate industrial processes and materials in the production of the major project • Uses and documents a range of appropriate industrial technologies in the production of the major project • Demonstrates and critically evaluates how solutions to problems in major project production were addressed	33 – 40

Criteria	Marks
• Demonstrates high quality in most aspects of the major project production • A project of substantial difficulty, with evidence of high quality in the application of most skills and techniques in the planning and production of the major project • Completed project relates to what was intended. Some links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of appropriate industrial processes and materials in the production of the major project • Uses and documents some appropriate industrial technologies in the production of the major project • Demonstrates and explains how solutions to some problems in major project production were addressed Candidates may achieve 25 – 32 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	25 – 32
• Demonstrates substantial quality in most aspects of the major project production • A project of moderate difficulty, with evidence of high but inconsistent quality in the application of skills and techniques in the planning and production of the major project • Completed project relates loosely to what was intended. Minimal links between actual construction processes, management and thorough research and planning are evident • Demonstrates and describes the use of some industrial processes and a limited range of materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates solutions to some problems in major project production Candidates may achieve 17 – 24 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	17 – 24

Criteria	Marks
• Demonstrates basic quality in most aspects of the major project production • A project of minimal difficulty, with evidence of basic quality in the application of skills and techniques in the planning and production of the major project • Links between planning and production are not clear • Demonstrates and describes the use of a limited range of common industrial processes and materials in the production of the major project • Uses and documents some basic industrial technologies in the production of the major project • Demonstrates partial solutions to some simple problems in major project production Candidates may achieve 9 – 16 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.	9 – 16
• Demonstrates poor quality in all aspects of the major project production • An undemanding project, with minimal or no evidence of quality in the application of skills and techniques in the planning and development of the major project • No links between planning and production are evident • Demonstrates the use of one or two basic processes and inappropriate use of materials in the production of the major project • Uses a very limited range of basic industrial technologies in the production of the major project • Demonstrates inappropriate solutions to some simple problems in major project production Candidates may achieve 1 – 8 marks as indicated above OR by satisfying a subset of the criteria for other mark ranges.	1 – 8

Written Paper — Timber Products and Furniture Industries

Section I

Question 1 (a) (8 marks)

Outcomes assessed: H1.2, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identification and detailed description of appropriate new technology • Clearly explains how the introduction of this new technology could improve the production capacity of a company in the stated industry	8
• Identification and a good description of the new technology, and an explanation of how this new technology could improve production	6–7
• Identification and a brief description of new technology, and a good description related to production capacity	4–5
• Identification of new technology and brief description	2–3
• Identification of new technology	1

Question 1 (b) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of how the expansion of the company relates to both the organisation and management of the company OR • Two or more relevant impacts related to expansion of company	2
• A brief statement of how the expansion would impact on the organisation or management of the company	1

Question 1 (c) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics and features of two features that would support expansion of company	2
• One feature with a brief description	1

Question 1 (d) (i) (4 marks)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides characteristics of mass production • Shows how the features of mass production could affect the profitability of the company	4
• Brief description of mass production • Brief explanation of how mass production affects profitability	3
• Brief description of mass production OR • Two examples of how mass production affects profitability	2
• One relevant point relating to mass production/profitability	1

Question 1 (d) (ii) (4 marks)

Outcomes assessed: H1.1, H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description relating quality control to both products and services. Many features/factors/characteristics	4
• Good description relating quality control to both products and services	3
• Brief description relating quality control to both products and services OR • Detailed description relating to either products or services	2
• Brief description, one relevant point re either products/services	1

Question 2 (a) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Names more than one implication of purchasing new equipment relevant to the efficiency of the company, showing how those factors could affect the company	2
• Names an implication related to the purchasing of new equipment	1

Question 2 (b) (i) (2 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Indicates the main features of multiskilling and how this could improve efficiency of the company.	2
• Indicates a feature of multiskilling not related to efficiency of company OR • One relevant method of improving efficiency (eg. less down time)	1

Question 2 (b) (ii) (4 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Provides features of more than one relevant personnel issue and how each issue impacts on efficient production	4
• Brief description of more than one personnel issue and how they relate to production OR • Provides features of one relevant issue and how this impacts on efficient production	3
• Brief description of a personnel issue and its effect on production	2
• Brief description of one personnel issue/term	1

Question 2 (c) (6 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Detailed description of how more than one computer software application is used in the planning, development and management of projects	6
• Detailed description of how computer software applications are used in some parts of the production process (ie planning, development or management)	4–5
• Describes the application of computer software in either planning, development or management	2–3
• Briefly indicates how computer software applications can be used	1

Question 2 (d) (6 marks)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• Discussion of a range of relevant training methods and their advantages/ disadvantages and method of competency assessment	6
• Description of a range of relevant training methods and method of competency assessment	4–5
• Description of more than one relevant training method OR • One training method and method of competency assessment	2–3
• Names a training method OR • Briefly describes a training method	1

Question 3 (a) (i) (1 mark)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Brief description of the key idea conveyed by the sign	1

Question 3 (a) (ii) (3 marks)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
• Provides more than one feature and gives examples related to effectiveness in communication	3
• Names more than one feature and briefly relates to effectiveness in communication OR • Gives one feature and makes clear relationship to its effectiveness in communication	2
• Names one feature of sign	1

Question 3 (a) (iii) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Provides a suitable reason with an example of placement/position	2
• Provides a suitable reason	1

Question 3 (a) (iv) (2 marks)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• Two suitable strategies named	2
• One suitable strategy named	1

Question 3 (b) (i) (9 marks)

Outcomes assessed: H5.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Well-structured, logically presented, detailed answer showing knowledge and understanding from sourcing to presentation • Range of information-processing skills outlined • References made to appropriate computer software	9
• Range of information-processing skills outlined, used to prepare and present manual • Reference made to two or more relevant computer software applications	7–8
• Some information-processing skills outlined for preparation and presentation • Makes references to at least two relevant computer software application	5–6
• Brief reference to information-processing skills used to prepare/or present document • At least one single computer application mentioned	3–4
• Brief reference to one information processing skill	1–2

Question 3 (b) (ii) (3 marks)

Outcomes assessed: H5.2

MARKING GUIDELINES

Criteria	Marks
• 3 correct answers for printing, paper and binding	3
• 2 correct answers for printing, paper or binding	2
• 1 correct answer for printing, paper or binding	1

Section II

Question 4 (a) (2 marks)

Outcomes assessed: H3.1, H4.3

MARKING GUIDELINES

Criteria	Marks
• Correct name of joint AND appropriate sketch of joint	2
• Correct name of joint OR appropriate sketch	1

Question 4 (b) (4 marks)

Outcomes assessed: H1.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• A description of method and sketch showing the correct use of clamping device that ensures the frame remains flat AND square	4
• A description of method and sketch showing the correct use of clamping device that ensures the frame remains flat OR square	3
• A description of method OR sketch showing the correct use of clamping device without ensuring the frame remains flat OR square	2
• Shows a basic understanding of clamping the frame together	1

Question 4 (c) (5 marks)

Outcomes assessed: H4.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Names AND describes a range of relevant timber qualities, giving examples of how these could affect the quality or production of the mirror frame	5
• Names two timber qualities AND provides a simple related explanation of the effect on the mirror frame	4
• Names two timber qualities AND provides a statement about these qualities OR an unrelated explanation of their effect on the mirror frame	3
• Names two timber qualities OR provides a simple explanation about their effect on the mirror frame	2
• Names one timber quality OR provides a non-related statement about the mirror frame	1

Question 4 (d) (9 marks)

Outcomes assessed: H2.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Recognises, names AND discusses a range of appropriate safety controls relating to BOTH OH&S and EPA	8–9
• Recognises, names AND discusses several appropriate safety controls relating to EITHER OH&S OR EPA	5–7
• Recognises, names AND discusses one or two appropriate safety controls without relating to EITHER OH&S OR EPA	3–4
• An elementary statement about safety controls OR • Recognises AND names one or two appropriate safety controls	1–2

Question 5 (a) (2 marks)

Outcomes assessed: H3.1, H4.3

MARKING GUIDELINES

Criteria	Marks
• Names AND sketches a suitable cabinet hardware fitting	2
• Names OR sketches a suitable cabinet hardware fitting OR • Names AND sketches a suitable particle board screw	1

Question 5 (b) (4 marks)

Outcomes assessed: H6.1

MARKING GUIDELINES

Criteria	Marks
• Detailed description of features of mass production manufacturing process supported by detailed sketches.	4
• Brief description of manufacturing process supported by detailed sketch(es) OR • Detailed description of a manufacturing process supported by a simple sketch(es)	3
• Brief description of manufacturing process with a simple supporting sketch OR • Detailed sketch(es) of a manufacturing process OR • Detailed description of a manufacturing process	2
• Poor description of manufacturing process, no sketches used to illustrate answer OR • Simple sketch of a suitable manufacturing method	1

Question 5 (c) (3 marks)

Outcomes assessed: H1.2, H3.3, H6.1

MARKING GUIDELINES

Criteria	Marks
• Describes factors relating to BOTH the advantages and disadvantages that MDF has over other manufactured boards	3
• Describes more than one factor which relates to either the advantages OR disadvantages that MDF has over other manufactured brands	2
• Identifies one factor which relates to either the advantages OR disadvantages that MDF has over other manufactured boards	1

Question 5 (d) (3 marks)

Outcomes assessed: H4.2, H4.3

MARKING GUIDELINES

Criteria	Marks
• Identifies more than one reason for using cabinet hardware fittings with supporting explanations	3
• Identifies a reason for using cabinet hardware with a supporting explanation	2
• Identifies a reason without giving an explanation	1

Question 5 (e) (8 marks)

Outcomes assessed: H1.2, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• A detailed description of how the manufacturer would ensure quality processes and components were used, and carry out a range of quality checks on the wall unit throughout the mass production process • Characteristics and features of a range of (three or more) quality checks clearly described	8
• A description of how the manufacturer would ensure quality processes and components were used, and carry out several quality checks throughout the manufacturing process • Characteristics and features of two of these quality checks described	6–7
• Describes some features of quality processes and/or components, and some quality checks that would be made relating them to the production process	4–5
• Identifies some quality control checks or processes and/or components, and that would be made, without relating them to the production process	2–3
• A simple identification of control checks unrelated to wall unit production	1