Contents of Handbook

Course Description........................................................................................................3
Course Structure.............................................................................................................4
Course Objectives & Outcomes......................................................................................5
Scope and Sequence....................................................................................................10
Glossary of Terms........................................................................................................11
Band Descriptors..........................................................................................................16
Assessment Schedule..................................................................................................17
Assessment Task 1........................................................................................................18
Assessment Task 2........................................................................................................23
Assessment Task 3........................................................................................................26
YEAR 12 Examination Specifications & Mark Allocations........................................29
Requirements for the Major Design Project..............................................................30
Major Project Marking Guidelines...............................................................................33
Standards Materials.....................................................................................................36
Course Description: Design and Technology

Course No: 15080

2 units for each of Preliminary and YEAR 12

Board Developed Course

Exclusions: Nil

Course Description
The Preliminary course involves the study of both designing and producing. This is explored through areas such as design theory and practice, design processes, environmental and social issues, communication, research, technologies, and the manipulation of materials, tools and techniques. The course involves hands-on practical activities which develop knowledge and skills in designing and producing. The Preliminary course includes the completion of at least two design projects. These projects involve the design, production and evaluation of a product, system or environment and includes evidence of the design process recorded in a design folio. The design folio can take a variety of different forms.

The YEAR 12 course applies the knowledge and understanding of designing and producing from the preliminary course. It involves the development and realisation of a Major Design Project, a case study of an innovation, along with the study of innovation and emerging technologies. The study of the course content is integrated with the development of a Major Design Project, worth 60% of the YEAR 12 mark. This project requires students to select and apply appropriate design, production and evaluation skills to a product, system or environment that satisfies an identified need or opportunity. The case study of an innovation requires students to identify the factors underlying the success of the innovation selected, analyse associated ethical issues and discuss its impact on Australian society.

Main Topics Covered

Preliminary Course
Involves both theory and practical work in designing and producing. This includes the study of design theory and practice, design processes, factors affecting design and producing, design and production processes, technologies in industrial and commercial settings, environmental and social issues, creativity, collaborative design, project analysis, marketing and research, management, using resources, communication, manufacturing and production, computer-based technologies, occupational health and safety, evaluation, and manipulation of materials, tools and techniques.

YEAR 12 Course
Involves the study of innovation and emerging technologies, including a case study (20%) of an innovation and the study of designing and producing including a Major Design Project. The project folio addresses three key areas: project proposal and project management, project development and realisation, and project evaluation.

Particular Course Requirements
In the Preliminary course, students must participate in hands-on practical activities and undertake a minimum of two design projects. The projects will develop skills and knowledge to be further developed in the YEAR 12 course. Students will develop their knowledge of the activities within industrial and commercial settings which support design and technology and relate these processes to the processes used in their own designing and producing. Each project will place emphasis on the development of different skills and knowledge in designing and producing. This is communicated in a variety of forms, but students should be encouraged to communicate their design ideas using a range of appropriate media.

In the YEAR 12 course the activities of designing and producing that were studied in the Preliminary course are synthesised and applied. This culminates in the development and realisation of a Major Design Project and a case study of an innovation. Students should select and use the wide range of skills and knowledge developed in the Preliminary course, appropriate to their selected project. They must also relate the techniques and technologies used in industrial and commercial settings to those used in the development of design projects.

Page 3 of 47
### Course Structure

<table>
<thead>
<tr>
<th>YEAR 12 Course</th>
<th>120 indicative hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Each of the content areas is addressed through the major design project, case study and through other teaching and learning activities.</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Innovation and Emerging Technologies

The study of:
- designs and design practice
- factors which may impact on successful innovation
- entrepreneurial activity
- the impact of emerging technologies
- the impact on Australian society
- historical and cultural influences
- ethical and environmental issues
- creativity.

As part of this study, students will complete a case study of an innovation which includes reference to the above factors.

#### Designing and Producing

The study of:
- **Project proposal and project management**
  - identification and exploration of the need
  - areas of investigation
  - criteria to evaluate success
  - action, time and finance plans
- **Project development and realisation**
  - design theory and practice
  - creativity
  - research
  - development and evaluation of ideas
  - study of practices in industrial and commercial settings
  - production techniques
  - communication
  - safe working practices
  - selection and use of resources
- **Project evaluation**
  - criteria for evaluation
  - analysis of evaluation
  - impact of the major design project on the individual, society and the environment.

As part of this study, students will complete a major design project.

The YEAR 12 course is 120 indicative hours and includes the development and realisation of the major design project, a case study of an innovation and other teaching and learning activities. The comprehensive study of design and the processes of designing and producing that were studied in the Preliminary course are synthesised and applied.

The major design project involves students selecting and applying appropriate design, production and evaluation skills to a product, system or environment which satisfies an identified need or opportunity. Students have developed a wide range of skills and knowledge in the Preliminary course and in the YEAR 12 course are able to select and use those skills and knowledge appropriate to their selected project. The students relate the techniques and technologies used in industrial and commercial settings to those used in the development of design projects.

The case study involves the critical analysis of an innovation. By conducting a detailed case study of an innovation, students will be able to identify the factors underlying the success of the innovation; analyse ethical issues in relation to the innovation; and discuss the impact of the innovation on Australian society. They may also be able to apply processes similarly in the exploration and development of the major design project.
<table>
<thead>
<tr>
<th>Objectives</th>
<th>YEAR 12 Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will develop:</td>
<td>A student:</td>
</tr>
</tbody>
</table>
| 1. knowledge and understanding about design theory and design processes in a range of contexts | H1.1 critically analyses the factors affecting design and the development and success of design projects  
H1.2 relates the practices and processes of designers and producers to the major design project |
| 2. knowledge, understanding and appreciation of the interrelationship of design, technology, society and the environment | H2.1 explains the influence of trends in society on design and production  
H2.2 evaluates the impact of design and innovation on society and the environment |
| 3. creativity and an understanding of innovation and entrepreneurial activity in a range of contexts | H3.1 analyses the factors that influence innovation and the success of innovation  
H3.2 uses creative and innovative approaches in designing and producing |
| 4. skills in the application of design processes to design, produce and evaluate quality design projects that satisfy identified needs and opportunities | H4.1 identifies a need or opportunity and researches and explores ideas for design development and production of the major design project  
H4.2 selects and uses resources responsibly and safely to realise a quality major design project  
H4.3 evaluates the processes undertaken and the impacts of the major design project |
| 5. skills in research, communication and management in design and production | H5.1 manages the development of a quality major design project  
H5.2 selects and uses appropriate research methods and communication techniques |
| 6. knowledge and understanding about current and emerging technologies in a variety of settings | H6.1 justifies technological activities undertaken in the major design project through the study of industrial and commercial practices  
H6.2 critically assesses the emergence and impact of new technologies, and the factors affecting their development |
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Students learn about:</th>
<th>Students learn to:</th>
</tr>
</thead>
</table>
| H1.1 critically analyses the factors affecting design and the development and success of design projects | • factors affecting designing and producing, including:  
- appropriateness of the design solution  
- needs  
- function  
- aesthetics  
- finance  
- ergonomics  
- work health and safety  
- quality  
- short-term and long-term environmental consequences  
- obsolescence  
- life cycle analysis  
• examples of success and failure in design | • apply factors affecting design to the development of the major design project  
• debate the issues and factors influencing design and design practice  
• critically analyse examples of success and failure in design solutions |
| H1.2 relates the practices and processes of designers and producers to the major design project | • the work of designers  
- design practice  
- processes used by designers | • emulate, where appropriate, the practices and processes used by designers to assist in the development of the major design project  
| H2.1 explains the influence of trends in society on design and production | • trends in designing and producing, including those which are influenced by social, global, political, economic and environmental issues  
• historical and cultural influences on designing and producing, including:  
- changing social trends  
- cultural diversity  
- the changing nature of work  
- technological change | • discuss the issues arising from trends in design and technological activity  
• identify and acknowledge historical and cultural influences on design and technological development |
| H2.2 evaluates the impact of design and innovation on society and the environment | • ethical and environmental issues  
- ethical and environmental considerations for designers and society  
- sustainable technologies  
- protection of intellectual property  
- rights and responsibilities of the designer  
- impact on Australian society | • critically analyse ethical issues in relation to innovation  
• discuss ethical and environmental considerations for designers and society in general  
• identify the factors which contribute to the efficiency and sustainability of technologies |
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Students learn about:</th>
<th>Students learn to:</th>
</tr>
</thead>
</table>
| H3.1 analyses the factors that influence innovation and the success of innovation | • factors that impact on success of innovation including:  
  - timing, available and emerging technologies, historical and cultural, political, economic and legal factors, marketing strategies  
  - the role of a variety of agencies that may impact upon the success of innovation  
  - entrepreneurial activity  
    - nature of entrepreneurial activity  
    - role in design and technological activity  
    - agencies which influence entrepreneurial activity  
    - management and entrepreneurial activity  
    - legal and ethical issues | • differentiate between factors which have contributed to the success or failure of innovations  
  • describe the role of a variety of agencies that influence the development, implementation and acceptance of innovation  
  • discuss the influence of entrepreneurial activity on successful design and innovation  
  • discuss the legal and ethical issues related to entrepreneurial activities |
| H3.2 uses creative and innovative approaches in designing and producing | • creativity and innovative design practice  
  - processes undertaken to develop innovations  
  - success of innovation  
  - adaptation and development of ideas  
  - responding to motivational stimuli  
  - creative thinking | • demonstrate creativity in the development of the major design project  
  • critically analyse successful innovation  
  • discuss concepts of quality, innovation and creativity |
| H4.1 identifies a need or opportunity and researches and explores ideas for design development and production of the major design project | • needs analysis  
  - researching and developing ideas  
  - identifying opportunities  
  - formulating an individual design proposal  
  • research and methods of experimentation to generate ideas | • develop a major design project proposal that clearly outlines:  
  - identification and exploration of the need  
  - areas of investigation  
  - criteria to evaluate success  
  • respond to the findings of experimentation and research  
  • experiment with materials, tools and technologies when designing |
| H4.2 selects and uses resources responsibly and safely to realise a quality major design project | • factors to be considered when selecting resources including:  
  - safety  
  - ethical issues  
  - environmental issues | • explain the principles underlying safe working practices and environments  
  - identify, select, use and justify the use of resources based on the results and analysis of research |
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Students learn about:</th>
<th>Students learn to:</th>
</tr>
</thead>
</table>
| H4.3 evaluates the processes undertaken and the impacts of the major design project | • project evaluation  
  – ongoing evaluation  
  – criteria to evaluate success  
  – analysing criteria for evaluation  
  – implementation of design solutions  
  • the impact of the major design project  
  – on the individual  
  – on society  
  – on the environment (local and global)  
  – in relation to potential social or environmental costs or benefits | • identify functional and aesthetic criteria of the major design project  
 • test possible solutions of the major design project  
 • conduct continual evaluation throughout the design and production of the major design project  
 • evaluate the impact of the major design project on the individual, society and the environment  
 • evaluate the major design project in terms of the identified criteria for success |
| H5.1 manages the development of a quality major design project | • project management  
  – including methods of managing action, time and finance appropriate to the nature of individual design projects  
  – documentation procedures for developing management plans | • formulate management plans, including:  
  – action  
  – time  
  – finance  
 • apply and evaluate management plans  
 • manage a quality major design project that successfully meets the identified need |
| H5.2 selects and uses appropriate research methods and communication techniques | • research methods  
  – data collection, analysis, interpretation and application of conclusions  
  • communication  
  – presenting information  
  – visualising solutions  
  – communication and presentation methods appropriate to the target market | • conduct research to examine the success of an innovation and produce an investigative report  
 • select and apply appropriate research methods for the major design project and case study  
 • justify decisions made based on analysis of research  
 • select and use appropriate communication techniques for the development of the major design project  
 • |
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Students learn about:</th>
<th>Students learn to:</th>
</tr>
</thead>
</table>
| H6.1 justifies technological activities undertaken in the major design project through the study of industrial and commercial practices | - practices in industrial and commercial settings as they relate to the major design project including:  
  - safe work practices using selected resources  
  - production techniques  
  - selection of processes appropriate to an identified need or opportunity  
  - collaborative designing and design teams | - identify design and production processes used in domestic, community, industrial and commercial settings  
- implement safe work practices using selected materials and techniques in design and production of the major design project  
- explain the principles underlying safe working practices and environments |
| H6.2 critically assesses the emergence and impact of new technologies, and the factors affecting their development. | - emerging technologies  
  - factors affecting their development  
  - criteria for evaluation  
  - impact on society and the environment  
  - impact on innovation. | - appraise the ecological, economic, social, ethical, and legal implications of new and emerging technologies  
- analyse the impact of emerging technologies on innovation. |
### Term 4 (2019)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 11 Course Work</strong></td>
<td><strong>Year 11 Course Work</strong></td>
<td>Commence Year 12 course Overview</td>
<td>Assessment booklet Examples of success and failure in design</td>
<td>Communication &amp; emerging technologies</td>
<td><strong>TASK 1 – Case Study</strong> H2.1, H2.2, H3.1, H5.2, H6.2</td>
<td>Project Planning – Action, Time and Finance Planning</td>
<td>Needs analysis Project evaluation, Ongoing evaluation &amp; Criteria for Success</td>
<td>Areas of investigation Samples of folio success and failure</td>
<td><strong>TASK 2 – Design Proposal, Research &amp; Management</strong> H1.1, H4.1, H4.3, H5.1</td>
</tr>
</tbody>
</table>

**Work on Major Project Folio throughout term**

### Term 1 (2020)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trends in designing &amp; producing</td>
<td>Historical &amp; cultural influences on designing and producing</td>
<td>Ethical &amp; environmental issues</td>
<td>Research Methods</td>
<td>Evidence of creativity</td>
<td>Design factors relevant to MDP</td>
<td>Research &amp; Experimentation of tools &amp; materials</td>
<td>Selection of resources</td>
<td>Identification &amp; justification of ideas &amp; resources</td>
<td>Prototyping Communication &amp; presentation techniques</td>
</tr>
</tbody>
</table>

**Work on prototyping and Major works will occur throughout term**

### Term 2 (2020)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of practical skills to produce a quality MDP</td>
<td>Recording &amp; application of evaluation procedures</td>
<td>Evaluation of functional &amp; Aesthetic aspects</td>
<td>Final evaluation impact on individual, society &amp; environment</td>
<td>Relationship of final product to project proposal</td>
<td>Work of designers – practice &amp; processes</td>
<td>Creative &amp; innovative approaches</td>
<td>Ethical &amp; environmental issues</td>
<td>Finalising project Finalising project</td>
<td></td>
</tr>
</tbody>
</table>

**Work on prototyping and Major works will occur throughout term**

### Term 3 (2020)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finalising project</td>
<td><strong>TASK 3 – Project Development and Management Report</strong> H1.2, H3.2, H4.2, H4.3, H6.1</td>
<td>Finalising folio requirements/collate</td>
<td>Finalising folio requirements/collate</td>
<td><strong>TASK 4 – Trial HSC Examination</strong> H1.1, H2.1, H2.2, H3.1, H6.2</td>
<td><strong>TASK 4 – Trial HSC Examination</strong> Possible major project due date</td>
<td>Major works Set up for marking</td>
<td>Planned YEAR 12 Revision HSC Marking weeks</td>
<td>Planned YEAR 12 Revision HSC Marking weeks</td>
<td>Planned YEAR 12 Revision</td>
</tr>
</tbody>
</table>

**Major Works and folio to be finalised and submitted.**
Glossary of Terms

**ACTION PLAN**
A plan of actions, usually also indicating when a particular action will happen and what the interrelationships and dependencies are between actions. Types are: Gantt Charts, Pert Diagrams.

**ANALYSIS**
The analysis of a problem or need is to look at each section of it and determine the core issues to be addressed. The analysis of "Design a box to store bread in a kitchen" should lead to issues such as... how big is bread? where in the kitchen? what's the best way to store bread? what materials are suitable? what techniques, tools and processes are available? store for how long? and so on. A good thinker should be able to identify more issues.

**APPLICATION**
How has it been used? In the context of Design and Technology, especially in Project Development and Realisation, the markers will want to see that the research you do is both useful and has been used. If the experiment that you did, had no effect on your project, it will be very important to say why it did not. It is ideal if you can show how everything you do in your folio is applied, is used in your project. The folio is not the only part of the project. It is essential that you show how your folio work has helped your project develop.

**AREAS**
Used in Areas of Investigation, these are the broad areas, in a list form, that you will investigate to take your project from a series of ideas, through to implementation.

**BRAINSTORMING**
A technique used in creating ideas, usually done in a group where everyone calls out ANY idea and it is written down by the team leader. No one is allowed to criticise any one's idea, all ideas are written up and it is okay to combine two ideas to make it your own. There are many more creativity methods available to help generate ideas.

**BUDGET**
How much do you have available to spend? It is also a good idea to "dissect" your budget into the different parts of your project. For example, $10 for folio, $20 for experiments, $40 to manufacture and so on.

**CHECK SHEET**
The markers/examiners, who visit your school have a deep understanding of the subject and are trained to apply the subject rules. To help them apply all of the rules to every project that they mark, a check sheet is prepared to enable them to consider every aspect of your project. Note that it is a guide only and both the Syllabus and the Subject Manual are used to guide the markers in their work.

**COMMUNICATION**
Your ability to use a range of communication methods is important in Design and Technology. Writing, drawing and modelling would be part of most folios, but you will also record conversations, telephone people, be on the Internet and so on. Your use of communication techniques should be well documented.
CRADLE TO GRAVE
This is the common term used to describe a life cycle analysis of a product. It implies that you evaluate the product, system or environment from when it is created out of its components and take into account where all of those components came from, right back to their raw materials, and how energy was used and how waste was disposed in their creation. It also expects analysis of the life of the product, system or environment after its service life until disposal.

CREATIVITY
The ability to create. If you are creative in Design and Technology you will not only come up with lots of possible solutions, but will also be able to see a variety of ways to work past the problems that you encounter and can use many different ways to do your research. Creativity in Design and Technology means more than being artistically creative, though this is important too, and in some types of projects will be very important.

CRITERIA
When we watch the diving at the Olympics, we see that the judges give points for different parts of the dive. The judges apply the criteria to the dive and score it on each of these criteria. When you determine the criteria for your design project, you will use it to judge the success or failure or the project. Criteria is something that you judge on. Criteria for buying a new walkman may be, sound quality, battery life, compactness or brand name. The diving analogy may also help if you consider degree of difficulty. The markers will also consider that when marking your project.

DESIGN
Design is the concept which links human ingenuity to selected activities in order to meet challenges and find solutions. Designing may begin with an original thought or develop from existing design. There are many other definitions such as:
- creative planning to meet specific human needs
- the concept which links human ingenuity to activities in order to meet challenges and find solutions
- solving problems that will bring about changes and improvements in manufactured objects and people's environments
- to plan, to lay out, to arrange and to make selections
- that decision making process by which humans determine, in advance of production, the forms of environments, objects and communications
- a planned, purposeful activity which leads to a solution to a problem or the satisfaction of a need
- organised problem solving.

DESIGNING
A process based activity which leads from the identification of a need or a problem to the implementation of the solution. Designing can be considered to include the making and evaluation of a project OR it can be considered to be the creative step in a process of Designing, then Making and then Evaluating. Most people will understand that designing (and making, evaluating) is not a linear process, but will oscillate between each phase towards the culmination of the work.

EVALUATING
This is when you assess your progress by applying the criteria that you have developed to each step. When an experiment is conducted, you would evaluate the results to see if they are relevant and if they impact on your projects development. When you analyse existing solutions to problems similar to yours, you will evaluate them against your criteria. The essential thing for Design and Technology is that the criteria that
you establish at the start is used throughout, to show that the project is moving towards the satisfaction of the needs.

**EVIDENCE**
Markers/Examiners will constantly look at the product/system or environment that you produce for the evidence of the application of skills, application of your research and application of the results of experimentation and testing. The validity of your work is evidenced by the application in the product of your designing.

**EXAMINERS**
In the subject manual, the people who mark the projects are referred to as examiners. In other documents and at the Office of the Board of Studies, these people are known as markers, senior markers and so on. The term marker and examiner are the same within these pages.

**EXPERIMENTATION**
Experiments are usually conducted to compare one thing to another.

**FINANCE PLAN**
Within the Project Proposal you are expected to produce a plan of finances. This would include a budget and a breakdown of how you expect it to be spent over the one year that you will work on your project. This could be a separate document, or included within your Action and Time Plans. The ACTUAL spending of your budget should also be included in your financial planning. This will be more than keeping receipts. An analysis of the disbursement of the funds should be done.

**GANTT CHART**
A Gantt chart is one type of organisational chart which could be used to convey the Action, Time and Finance plans to the examiners.

**INVESTIGATING**
Investigating involves going out and finding out, and the use of your best detective skills to locate or create the information that you need. Locating means that you can find the information, in a book (or two), on the Internet (validate at two or three sites), in a Library, from an expert (and supported by other evidence). Creating information means that you will conduct an experiment, a test, or a survey (on more people than just your friends).

**JUSTIFY**
This is simply saying WHY you have done a particular thing, and in Design and Technology, backing up your reason with some evidence.

**MAKING**
This means the construction of your project, the construction of the furniture, garment, system, database, multimedia, industrial product, farming equipment, software, recipe. Making in the context of Designing, Making and Evaluating means that you are "doing it", you are "assembling the parts" so that the product, system, or environment can be used, so that you can realistically evaluate it.
MARKERS
These are the same as examiners when mentioned within these pages. The words examiners and markers are synonymous.

MDP
Your Major Design Project, this includes both the folio and the product of your designing, which will be either a product, a system or an environment.

MIND MAPS
A mind map is a method of organising your thoughts. It is especially useful when analysing a problem or need, and can also prove a useful tool for evaluation.

PRACTICAL SKILLS
Design and Technology is a course where Design Projects include the practical hands on activity of carrying a project through to its realisation. The realisation of a project should satisfy the purpose identified in the initial project proposal. Documentation of all the steps involved in the project and the appropriate use of computer technology should be incorporated into Design Projects.

Students need to, as much as is possible, be involved fully in the making or implementation of their MDP, with the majority of the work occurring at school.
Students need to show that they have the "practical skills" appropriate for the particular MDP chosen.

PRESENTATION
As a YEAR 12 candidate, the quality of presentation of the work in both folio and product, system or environment, needs to be of appropriate quality. The examination criteria also refers to presentation techniques. This means that a range of techniques should be used to present the project.

PROPOSAL
The project proposal includes the Identification and exploration of Needs, the Criteria to Evaluate success and the Areas of Investigation. This is a projection of what is likely to occur. As the project develops, things may change. These changes would be the result of evaluation and would be fully documented in the folio.

RESOURCES
This is anything at all that you may possibly use to implement you project. Human, time, energy and material resources are the minimum that you should consider.

SELECT
Make a choice and, in Design and Technology terms explain or justify the reasons for that choice.
SUCCESS
Success with the MDP is judged by whether the outcome of your designing meets the criteria that you set in the Project Proposal. There will be various levels of success that you should explain to the examiners by comparing the final result of your work to the needs, functional, aesthetic, societal and environmental criteria that you have established.

SYLLABUS
This is the document approved by the NSW Board of Studies that tells schools what students are expected to know, attitudes they should have and skills they should have acquired as a result of studying the course.

TECHNOLOGY
In this subject, Technology is the know-how and creative processes that may assist people to utilise tools, resources and systems to solve problems and to enhance control over the natural and made environment in an endeavour to improve the human condition.
Other definitions:
- the purposeful application of knowledge, experience and resources to create products and processes that meet human needs
- the study of systems of making or producing
- products, knowledge and skills working together to improve the human condition.

TESTING
To check whether something will work or not. A test should be done to prove that something will work. To test a hypothesis is to check whether it is true or not.

TIME MANAGEMENT
The ability to organise the MDP through the year to a successful conclusion and implementation. The MDP is probably the largest task that you have ever undertaken, the use of some time management strategies will be crucial to your success.

TIME PLAN
Is a plan of how you expect to spend your time over the one year that the MDP will last. It will also include the actual use of your time as you go. This is likely to be different to your plan. Many students record this actual use of time in a diary. The use of a labour cost to give a true indication of the research and development costs of your project can easily be calculated from an accurate time plan.
## Design and Technology Performance band descriptions

**The typical performance in this band:**

### Band 6
- demonstrates a high level of understanding of design theory and the factors affecting design
- critically analyses the factors which influence design and technological development
- exemplifies quality design practice and is innovative in applying design theory
- selects from, and effectively uses a wide range of research methodologies and communication techniques
- selects and appropriately uses materials, tools and techniques and manages the production of an outstanding major design project
- comprehensively evaluates processes undertaken in their own and other’s design and technological activities
- critically assesses the impact of current and emerging technologies

### Band 5
- demonstrates a detailed understanding of design theory and the factors affecting design
- analyses the factors which influence design and technological development
- applies understanding of design theory to exhibit quality design practice
- selects from, and uses appropriately a range of research methodologies and communication techniques
- selects and appropriately uses materials, tools and techniques and manages the production of a high quality major design project
- evaluates processes undertaken in their own and other’s design and technological activities
- assesses the impact of current emerging technologies

### Band 4
- demonstrates a sound understanding of design theory and the factors affecting design
- explains the factors which influence design and technological development
- applies understanding of design theory to display good design practice
- selects and uses a range of research methodologies and communication techniques
- selects and uses materials, tools and techniques and manages the production of a major design product of substantial quality
- explains processes undertaken in their own and other's design and technological activities
- demonstrates a broad knowledge and understanding of current and emerging technologies

### Band 3
- demonstrates a basic understanding of design theory and the factors affecting design
- describes the factors which influence design and technological development
- develops and implements design ideas
- conducts basic research and presents findings and ideas using only one or two communication techniques
- uses materials, tools and techniques and manages the production of a satisfactory major design project
- describes processes undertaken in their own and other's design and technological activities
- demonstrates a basic knowledge of current and emerging technologies

### Band 2
- demonstrates a limited understanding of design theory and the factors affecting design
- identifies some factors which influence design and technological development
- implements design ideas
- conducts limited research and communicates ideas in a simple way
- uses materials, tools and techniques to produce an elementary major design project
- identifies design criteria for their own and other's design and technological activities
- demonstrates an elementary knowledge of current and emerging technologies
## YEAR 12 - 2020
### DESIGN and TECHNOLOGY

<table>
<thead>
<tr>
<th>TASK</th>
<th>WHEN</th>
<th>TOPIC/S</th>
<th>TYPE OF TASK</th>
<th>OUTCOMES</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Term 4 2019 Week 6</td>
<td>Innovation &amp; Emerging Technologies</td>
<td>Case Study</td>
<td>H2.1, H2.2, H3.1, H5.2, H6.2</td>
<td>20%</td>
</tr>
<tr>
<td>2</td>
<td>Term 4 2019 Week 10</td>
<td>Project Proposal and Management</td>
<td>Design Proposal, Research &amp; Management</td>
<td>H1.1, H4.1, H4.3, H5.1</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>Term 3 2020 Week 2</td>
<td>Innovation, Designing and Producing</td>
<td>Project Development &amp; Management Report</td>
<td>H1.2, H3.2, H4.2, H4.3, H6.1</td>
<td>40%</td>
</tr>
<tr>
<td>4</td>
<td>Term 3 2020 Weeks 5 – 6</td>
<td>ALL</td>
<td>Trial HSC Examination</td>
<td>H1.1, H2.1, H2.2, H3.1, H6.2</td>
<td>20%</td>
</tr>
</tbody>
</table>
Tuggerah Lakes Secondary College
The Entrance Campus

YEAR 12 COURSE
TAS FACULTY

COURSE NAME: Design and Technology
MODULE / UNIT: Innovation and Emerging Technologies – Case Study

TIMING: Term 4 Week 6, 2019 DATE: 20/11/19 by 2:00pm
TASK NUMBER: 1 WEIGHTING: 20%

OUTCOMES: A student:

H 2.1 Explains the influence of trends in society on design and production.
H 2.2 Evaluates the impact of design and innovation on society and the environment.
H 3.1 Analyses the factors that influence innovation and the success of innovation.
H 5.2 Selects and uses appropriate research methods and communication techniques.
H 6.2 Critically assesses the emergence and impact of new technologies, and the factors affecting their development

TASK DESCRIPTION:

You are required to complete a detailed Case Study of a current innovation. The result of the study should be a useful investigative report that demonstrates critical thinking and analysis using appropriate research methods. The Case Study needs to be set up with each question being the start of a new section or page. The Case Study will relate the factors affecting design to the practices of designers and producers.

Your Case Study should address the following:

1. Name the innovation and provide a brief description, outlining the needs it meets. You need to include a picture of the innovation. 10
2. Name and explain a trend in society and how it has influenced the design and production of the innovation you are studying. 10
3. It is ideal for designers in society to think and act ethically. Evaluate how the designer of your chosen innovation addresses one ethical issue of design and innovation that impacts on society and the environment. 10
4. Name and analyse two factors that have influenced the innovation and contributed to the innovation’s success. 10
5. Describe the research, tests and experiments undertaken in developing your chosen innovation and explain how these have influenced the final design.

6. Identify a new technology that was critical to the development of your chosen innovation. How was it used for the development of/ for the production of/ in the innovation? Critically assess the impact of new technologies on your chosen innovation and outline if other technologies could have been substituted in order to make the design a success.

ADDITIONAL NOTES:
* The Campus Assessment Policy and procedures MUST be followed
* Tasks must be completed or handed in on the due date during the regular class
* Tasks that are handed in late may receive ZERO (0) marks and an N Warning letter issued
* Students should refer to the Policy sections on submission of work, plagiarism, illness and/or misadventure appeals, and the assessment task appeals process
* Written feedback will be provided to students on the TAS Course Assessment Feedback sheet
## DESIGN & TECHNOLOGY – YEAR 12 COURSE

**MODULE / UNIT:** Innovation and Emerging Technologies - The Case Study

**TASK:** 1  
**WEIGHTING:** 20%  
**DATE / TIMING:** Term 4 Week 6 20/11/19

### MARKING GUIDELINES

<table>
<thead>
<tr>
<th>Question 1 – H6.2</th>
<th>Mark</th>
<th>Mark Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics and features of the innovation, recognises and names the needs it meets. Provides a picture of innovation.</td>
<td>9-10</td>
<td></td>
</tr>
<tr>
<td>Sketches in general terms the innovation, sketches in general terms the needs it meets. Provides a picture of innovation.</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>Recognises and names the innovation, lists some of the needs it meets. Picture of innovation included and/or not included.</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Provides limited information in relation to the need of the innovation. Picture of innovation not included.</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 2 – H2.1</th>
<th>Mark</th>
<th>Mark Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shows the relationship between the influence of trends in design and production and how it relates to your chosen innovation.</td>
<td>9-10</td>
<td></td>
</tr>
<tr>
<td>Characteristics and features provided of a trend in society. Provides a link between the trend and its impact on chosen innovation.</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>Sketches in general terms a trend in society and briefly links to innovation.</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Lists a trend and/or trends with limited information about the innovation.</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 3 – H2.2</th>
<th>Mark</th>
<th>Mark Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names, explains and relates cause and effect of one ethical issue in society that may arise in the design and production of their innovation.</td>
<td>9-10</td>
<td></td>
</tr>
<tr>
<td>Outlines how the designer/s addressed one ethical issue in society that may arise in the design and production of their innovation.</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>Sketches in general terms how the designer/s addressed one ethical issue in society that may arise in the design and production of their innovation.</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Recognises and names how the designer/s addressed one ethical issue in society that may arise in the design and production of their innovation.</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question 4 – H3.1</th>
<th>Mark</th>
<th>Mark Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Names and analyses the relationship between two factors that have influenced the innovation and contributed to its success.</td>
<td>9-10</td>
<td></td>
</tr>
<tr>
<td>Outlines characteristics and features of two factors and links factors to the innovation and its success.</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>Sketches in general terms one factor with a limited link to the innovation.</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Recognises and names one factor and states a link and/or no link to innovation provided.</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>
### Question 5 – H5.2

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-10</td>
<td></td>
<td>Provides characteristics and features of the research, tests and experiments undertaken and shows the relationship of the influence this has on the innovation.</td>
</tr>
<tr>
<td>6-8</td>
<td></td>
<td>Sketches in general terms the research, tests and experiments undertaken and provides features of their influence on the innovation.</td>
</tr>
<tr>
<td>3-5</td>
<td></td>
<td>Recognises and names the research, tests and experiments undertaken and sketches out the influence it has on the innovation.</td>
</tr>
<tr>
<td>0-3</td>
<td></td>
<td>Lists the research, tests and experiments undertaken and makes some/no links to their influence on the innovation.</td>
</tr>
</tbody>
</table>

### Question 6 – H6.2

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-10</td>
<td></td>
<td>Recognises and names a new/emerging technology. Clear links are made between the new technology and how it is used in the innovation. Makes a judgement of the value and results of new technologies that relate to the selected innovation.</td>
</tr>
<tr>
<td>6-8</td>
<td></td>
<td>Recognises and names a new/emerging technology. Basic links are made between the new technology and how it is used in the innovation. Provides characteristics and features of the new technologies that relate to the selected innovation.</td>
</tr>
<tr>
<td>3-5</td>
<td></td>
<td>Sketches in general terms the new technologies that relate to selected innovation. Lists some of the factors that have impacted on its development.</td>
</tr>
<tr>
<td>0-3</td>
<td></td>
<td>Lists the impact of a new technology on the innovation.</td>
</tr>
</tbody>
</table>

**Total Mark / 60**

**Percentage %**

**Task Rank**

**Cumulative Rank**

### LEVEL OF ACHIEVEMENT OF OUTCOMES

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>ELEMENTARY</th>
<th>DEVELOPING</th>
<th>COMPETENT</th>
<th>HIGHLY DEVELOPED</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2.1 explains the influence of trends in society on design and production</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2.2 evaluates the impact of design and innovation on society and the environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3.1 analyses the factors that influence innovation and the success of innovation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H 5.2 selects and uses appropriate research methods and communication techniques.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H 6.2 Critically assesses the emergence and impact of new technologies, and the factors affecting their development.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TASK DESCRIPTION:
Designers often undertake feasibility studies to determine if a design idea may be successful prior to undertaking development of a product. Feasibility studies include research into existing products, research into market needs and identification of personal weaknesses. Designers also set themselves an explicit criteria of goals that their design must achieve based on their research. They then set themselves time constraints and a budget to work to in order to complete the design.

Task: You must conduct research on a design/product and propose how the designer may have addressed each of the following:

1. The research that the designer conducted to identify a problem that currently exists by outlining a “need”. You must provide genuine research and statistics into how common or widespread this problem is, detailing the genuine need to solve the problem.  
   **Marks:** 10

2. Complete a computer generated table identifying areas that the designer would need to investigate to solve the problem/need. These areas must relate clearly to the identified “need” (Question 1) and you must describe the future actions the designer would take in order to complete these investigations.  
   **Marks:** 10

3. Establish a range of criteria that the designer could use to determine if the final solution to the problem/”need” is successful. Describe why each of these criteria is necessary for the success of the design.  
   **Marks:** 10

4. Generate a series of actions that must take place in order for the designer to solve the problem. These actions will need to be placed in a time plan (in Gantt chart format). Estimate that the designer has 32 weeks to complete this new design. You must also propose a finance plan for the designer detailing the money that will need to be invested in producing prototypes, testing solutions and producing the final product.  
   **Marks:** 10
## MARKING GUIDELINES

### Question 1 – H1.1

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Provides a detailed exploration of a need/problem. Provides background research and statistics into how common/widespread the need/problem is. Justifies the reason for solving the need/problem.</th>
<th>8-10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Provides an exploration of needs and opportunities in relation to a possible design project.</td>
<td>6-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identifies a “need” with limited exploration or research</td>
<td>3-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Need stated without any clarity with limited links in relation to a design project.</td>
<td>0-2</td>
</tr>
</tbody>
</table>

### Question 2 – H4.1

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Provides a computer generated table outlining areas that must be investigated further to successfully solve the identified need/problem. Each point identified provides direction for further action, indicating how the research will be obtained/undertaken in relation to the project.</th>
<th>8-10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Outlines some areas to be investigated and provides information about future actions that will take place to solve the need/problem</td>
<td>6-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Names some areas of investigation with limited future actions identified.</td>
<td>3-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lists items that will be investigated with no link to future actions.</td>
<td>0-2</td>
</tr>
</tbody>
</table>

### Question 3 – H4.3

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Multiple criteria provided outlining the goals for the final design project. Provides characteristics and features of why each criteria is important in order to achieve a successful design project.</th>
<th>8-10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Some criteria outlined to determine the success or failure of a project. Sketches in general terms why each criteria is important in order to achieve a successful design.</td>
<td>6-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Limited criteria listed, Some may not be relevant to the design project. Recognises and names why the criteria may be linked to design projects.</td>
<td>3-5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>States criteria with no information about its importance and link to design projects.</td>
<td>0-2</td>
</tr>
</tbody>
</table>
**Question 4 – H5.1**

<table>
<thead>
<tr>
<th>MARK</th>
<th>MARK AWARDED</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-10</td>
<td></td>
</tr>
<tr>
<td>6-7</td>
<td></td>
</tr>
<tr>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>0-2</td>
<td></td>
</tr>
</tbody>
</table>

Provides thorough evidence of a series of actions that will take place in order to solve the design problem. Provides a thorough time plan in Gantt chart format over a 32 week period. Provides a thorough estimate of costs for a design project in a Finance Plan.

Provides sound evidence of Action and/or Time (Gantt chart) and/or Finance Plans with some aspects missing.

Provides basic evidence of Action, Time or Finance Plans.

Lists information relating to Action, Time or Finance Plans.

**LEVEL OF ACHIEVEMENT OF OUTCOMES**

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>ELEMENTARY</th>
<th>DEVELOPING</th>
<th>COMPETENT</th>
<th>HIGHLY DEVELOPED</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H5.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEACHER’S COMMENT:**

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
COURSE NAME: Design and Technology

MODULE / UNIT: Innovation, designing and producing

TIMING: Term 3, Week 2  
DATE: Wednesday 29th July 2020 by 2:00 pm

TASK NUMBER: 3  
WEIGHTING: 40%

OUTCOMES: A student:
H 1.2 Relates the practices and processes of designers and producers to the major design project.
H 3.2 Uses creative and innovative approaches in designing and producing
H 4.2 Selects and uses resources responsibly and safely to realise a quality major design project.
H 4.3 Evaluates the processes undertaken and the impacts of the major design project.
H 6.1 Justifies technological activities undertaken in the major design project through the study of industrial and commercial practices.

TASK DESCRIPTION:
You are required to submit your MDP folio (which will not be marked in this assessment task) for reference along with a report containing the following:

1. A table outlining the practices and processes that were undertaken in the production of your MDP and how these practices and processes are similar to the processes undertaken by designers.
20

2. A PMI table of existing products (minimum of 10) which are similar to your design. Each table must also evaluate how the product differs from your own or does not solve your identified problem/need.
20

3. A computer generated table listing the appropriate resources used in the MDP (maximum of 6). The table needs to identify where on the MDP the resource was used, the justification for the use of the resource and how the resource was used to solve a problem.
20

4. Details of a clear process of ongoing evaluation and the influence this evaluation had on the development of your MDP. Identify where on your MDP these evaluations have taken place.
20

5. An explanation of the similarities and differences of materials, tools and techniques used on your MDP in comparison to those used in an industrial or commercial setting.
20

Each process listed must reference a specific point(s) in your MDP folio.

Additional Notes:
The Campus Assessment Policy and procedures MUST be followed
* Tasks must be completed or handed in on the due date during the regular class
* Tasks that are handed in late may receive ZERO (0) marks and an N Warning letter issued
* Students should refer to the Policy sections on submission of work, plagiarism, illness and/or misadventure appeals, and the assessment task appeals process
* Written feedback will be provided to students on the TAS Course Assessment Feedback sheet
### Question 1 – H1.2

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Mark</th>
<th>Name _______________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a table showing thorough evidence of the processes undertaken in the development of the MDP and effectively links the practices and processes of designers and producers to the major design project.</td>
<td>16-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides sound evidence of the processes undertaken in the development of the MDP and identifies the links between the practices and processes of designers and producers to the major design project.</td>
<td>11-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides basic evidence of the processes undertaken in the development of the MDP and outlines the links between the practices and processes of designers and producers to the major design project.</td>
<td>6-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides elementary evidence of the processes undertaken in the development of the MDP and lists the links between the practices and processes of designers and producers to the major design project.</td>
<td>0-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Question 2 – H3.2

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Mark</th>
<th>Name _______________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides thorough evidence of 10 or more existing products. Completes thorough PMI table for each. Provides clear differences between the researched product and the students MDP.</td>
<td>16-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides thorough evidence of 5 to 10 existing products. Completes PMI table for each. Provides some differences between the researched product and the students MDP.</td>
<td>11-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides images of existing products and lists some positive and negative aspects for each.</td>
<td>6-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides some images of existing products.</td>
<td>0-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Question 3 – H4.2

<table>
<thead>
<tr>
<th>Mark Awarded</th>
<th>Mark</th>
<th>Mark</th>
<th>Name _______________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides a computer generated table showing thorough evidence of six resources used, expertly justifies the use of each resource, provides detailed evidence of how the use of the resources solved a problem, and provides clear links to where this information is found in the MDP folio.</td>
<td>16-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides a computer generated table showing sound evidence of four to six resources used, justifies the use of each resource, provides evidence of how the use of the resources solved a problem, and provides clear links to where this information is found in the MDP folio.</td>
<td>11-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides a computer generated table showing basic evidence of some resources used, justifies the use of some resources, and provides links to where this information is found in the MDP folio.</td>
<td>6-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides limited evidence of resources used, provides links to where this information is found in the MDP folio.</td>
<td>0-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Question 4 – H4.3

<table>
<thead>
<tr>
<th>Provided evidence</th>
<th>Mark Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides thorough detailed evidence of where ongoing evaluation has occurred in the MDP. Recognises and names how these evaluations aided in the development of the MDP.</td>
<td>16-20</td>
</tr>
<tr>
<td>Provides sound evidence of where ongoing evaluation has occurred in the MDP. Outlines how these evaluations aided in the development of the MDP.</td>
<td>11-15</td>
</tr>
<tr>
<td>Provides basic evidence of where ongoing evaluation has occurred in the MDP. Lists how these evaluations aided in the development of the MDP.</td>
<td>6-10</td>
</tr>
<tr>
<td>Provides limited evidence of where ongoing evaluation has occurred in the MDP.</td>
<td>0-5</td>
</tr>
</tbody>
</table>

### Question 5 – H6.1

<table>
<thead>
<tr>
<th>Provided evidence</th>
<th>Mark Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides thorough evidence of the materials and processes used within MDP. Explains why differences have occurred through the choices students have made compared to the processes used within commercial and industrial settings.</td>
<td>16-20</td>
</tr>
<tr>
<td>Provides sound evidence of the materials and processes used within MDP. Makes comparisons between the choices students have made compared to the processes used within commercial and industrial settings.</td>
<td>11-15</td>
</tr>
<tr>
<td>Provides basic evidence of the materials and processes used within MDP. Provides some evidence of the practices used in commercial and industrial settings.</td>
<td>6-10</td>
</tr>
<tr>
<td>Lists technical activities undertaken in the development of the MDP</td>
<td>0-5</td>
</tr>
</tbody>
</table>

| Total Mark | / 100 |
| Task Rank |  |
| Cumulative Rank |  |
# LEVEL OF ACHIEVEMENT OF OUTCOMES

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>ELEMENTARY</th>
<th>DEVELOPING</th>
<th>COMPETENT</th>
<th>HIGHLY DEVELOPED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H 1.2</strong> Relates the practices and processes of designers and producers to the major design project.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H3.2</strong> uses creative and innovative approaches in designing and producing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H 4.2</strong> Selects and uses resources responsibly and safely to realise a quality major design project.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H 4.3</strong> Evaluates the processes undertaken and the impacts of the major design project.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H 6.1</strong> justifies technological activities undertaken in the major design project through the study of industrial and commercial practices.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Teacher’s Comment:

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________
Design and Technology HSC examination specifications

The examination will consist of a written paper worth 40 marks and a Major Design Project worth 60 marks.

Written Paper

(40 marks)
Time allowed: 1 hour and 30 minutes plus 5 minutes reading time.

The paper will consist of three sections.

Section I (10 marks)
- There will be objective response questions to the value of 10 marks.

Section II (15 marks)
- There will be short-answer questions to the value of 15 marks.
- Questions may contain parts.
- There will be approximately four items in total.
- At least one item will be worth from 4 to 6 marks.

Section III (15 marks)
- There will be one extended response question.
- The question will have an expected length of response of around four pages of an examination writing booklet (approximately 600 words) in total.

Major Design Project

(60 marks)

The Major Design Project consists of an individual product, system or environment, and a folio. The folio documents the proposal, the project management, the development and realisation, and the project evaluation.

See Requirements for the Major Design Project, below.
Requirements for the Major Design Project

Each candidate must undertake and present, on an individual basis, a Major Design Project for submission for the Higher School Certificate examination. The Major Design Project includes the practical hands-on activity of carrying the project through to realisation and the documentation, in a design folio, of all the steps involved in this process.

The Major Design Project involves students selecting and applying appropriate design, production and evaluation skills to a product, system or environment which satisfies an identified need or opportunity. Students have developed a wide range of skills and knowledge in the Preliminary course, and in the HSC course are able to select and use those skills and knowledge appropriate to their selected project.

The purpose of the folio is to document the project proposal, management, development, realisation and evaluation of the Major Design Project. Students need to select appropriate samples of work that reflect the processes they have followed and that provide information showing how they have met the Major Design Project examination criteria.

Folio parameters
The folio will be limited to 80 written A4 pages OR 40 written A3 pages printed on ONE side only. Note that the page limit includes the title page, index, bibliography, design ideas, concept sketches and detailed drawings, as well as information presented on displays or noticeboards.

Students who need to use a combination of A3 and A4 pages in their folios to display their work to best effect must keep to the overall page limit, using $1 \times A3 = 2 \times A4$ pages as a guide.

Other media-based or multimedia-based materials in a student’s folio should not exceed six minutes viewing time in total.

Folio format
- The folio should be presented in an A4 or A3 folder.
- A clear and easily read font equivalent in size to 12-point Times New Roman should be used for text.
- Folio pages should be numbered.

Advice regarding project size
The physical size of the Major Design Project needs to be carefully considered. Teachers and students should be mindful of:
- the cost of materials
- the complexity and physical size of projects.
High marks are regularly achieved by students who have projects that are of modest cost, use minimal materials and do not require an excessive student time commitment.

**Advice regarding prototypes, models and testing items**
Depending on the type of project, prototypes, models and/or results of testing the project or its component parts may be submitted in addition to the folio parameters above. These should be relevant to the project and students will need to indicate their purpose and provide clear evidence of further action as a result of prototypes, models and/or testing. Simple labelling of these items is not included within the folio page limit.

**Advice regarding graphics and multimedia-based projects**
Graphics projects that are paper based, e.g. architectural drawings, magazines, posters or comic books, or multimedia based, e.g. web pages or animations, are not included in this page limit as these are the products, not the project folios.

Development of the Major Design Project may commence from the beginning of the HSC course.

Schools must have procedures in place that will allow effective supervision of the development of students’ Major Design Projects. This is particularly the case where work is done away from school. Note that, as it is intended that the syllabus content is taught through the development of the submitted project, most of the project is to be completed at school under the supervision of the class teacher. Projects will only be marked away from school sites in exceptional circumstances and only with the express permission of the Board of Studies before the project is started during the first term of the course. Schools must be confident that effective supervision and sufficient documentation of this work is possible before giving consent for students to begin work on their Major Design Project.

Students will be required to certify that the Major Design Project is their own original work, and that any material drawn from other sources and any outside assistance is acknowledged. Group projects are not permitted.

Teachers must certify that the work has been completed under their supervision, and that the rules and procedures detailed here have been followed.

The principal must be able to endorse the teacher’s declaration that the work:
- has been done under the teacher’s supervision
- is the student’s own work consistent with earlier drafts and other examples of the student’s work
- was completed by the due date.

On occasions it may be necessary for some minor aspect of the Major Design Project to be undertaken by some other person or agency. In such cases, the contribution of the outside agent/organisation must be documented in the design folio. Students will not be given credit for actual work completed by others. Justification for, and of, such work will be recognised in the marking process.
The teacher must keep a brief written record of each student’s progress throughout the Major Design Project. This should not be submitted with the project, but may be requested in exceptional circumstances where the examiners require further information. This record should be retained in the school together with assessment records. A Practical Project: Record of Student’s Progress is available to download from Schools Online.

### Major Design Project examination criteria

<table>
<thead>
<tr>
<th>Components</th>
<th>Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project proposal and management</td>
<td>• identification and exploration of the need</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>• areas of investigation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• criteria to evaluate success</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• action, time and finance plans and their application</td>
<td></td>
</tr>
<tr>
<td>Project development and realisation</td>
<td>• evidence of creativity – ideas generation, degree of difference and exploration of existing ideas</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>• consideration of design factors relevant to the Major Design Project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• appropriate research and experimentation of materials, tools, techniques and testing of design solutions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• application of conclusions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• identification and justification of ideas and resources used</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• use of communication and presentation techniques</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>• record and application of evaluation procedures throughout the design project</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• analysis and evaluation of functional and aesthetic aspects of design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• final evaluation with respect to the project’s impact on the individual, society and the environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• relationship of the final product, system or environment to the project proposal</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>
The Major Design Project will include the submission of:

(i) a folio documenting the project proposal and project management, project development and realisation, and project evaluation

(ii) a product or a system or an environment (PSE).

<table>
<thead>
<tr>
<th>Component</th>
<th>15</th>
<th>13</th>
<th>12</th>
<th>10</th>
<th>9</th>
<th>7</th>
<th>6</th>
<th>4</th>
<th>3</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification and exploration of the need</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifies and provides a detailed exploration of genuine needs and opportunities, justifying final selection for the development of the MDP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas of investigation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Describes relevant areas of investigation which relate clearly to the need, and provides direction for further action</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria to evaluate success</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establishes and analyses appropriate criteria to evaluate the success of the PSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action, time and finance plans and their application</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formulates and evaluates well-documented action, time and finance plans, and shows some evidence of their application to the PSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Design & Technology Major Design Project Marking Guidelines |

<table>
<thead>
<tr>
<th>Component</th>
<th>15</th>
<th>13</th>
<th>12</th>
<th>10</th>
<th>9</th>
<th>7</th>
<th>6</th>
<th>4</th>
<th>3</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification and exploration of the need</td>
<td>Identifies and provides an exploration of needs and opportunities, in relation to the development of the MDP</td>
<td>States a need with some exploration in relation to the development of the MDP</td>
<td>States a need with limited exploration in relation to the development of the MDP</td>
<td>Need stated without clarity, nor explored in relation to the development of the MDP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Areas of investigation</td>
<td>Describes some relevant areas of investigation in relation to the need and provides evidence that these were investigated</td>
<td>Describes areas of investigation in relation to the need, or shows evidence of being investigated</td>
<td>Lists areas of investigation in relation to the need which may not relate to further action, or shows evidence of areas being investigated</td>
<td>Names an area of investigation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria to evaluate success</td>
<td>Describes appropriate criteria to evaluate the success of the PSE, with little analysis of these criteria</td>
<td>Briefly describes criteria, some of which may be inappropriate to evaluate the success of the PSE</td>
<td>Lists criteria, some of which may be inappropriate to evaluate the success of the PSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action, time and finance plans and their application</td>
<td>Formulates action, time and finance plans, and shows some evidence of their application to the PSE</td>
<td>Formulates and applies action and/or time and/or finance plans</td>
<td>Some evidence of the application of action, time or finance planning</td>
<td>Action, time or finance planning not evident</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Design & Technology Major Design Project Marking Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Development &amp; Realisation</strong></td>
<td></td>
</tr>
<tr>
<td>Evidence of creativity – ideas generation, degree of difference and exploration of existing ideas</td>
<td>35</td>
</tr>
<tr>
<td><em>Demonstrates the substantial application of creativity in the development of the MDP</em></td>
<td>29</td>
</tr>
<tr>
<td><em>Demonstrates application of creativity in the development of the MDP</em></td>
<td>28</td>
</tr>
<tr>
<td><em>Demonstrates some creativity in the development of the MDP</em></td>
<td>22</td>
</tr>
<tr>
<td><em>Provides some evidence of ideas generation and/or exploration of existing ideas</em></td>
<td>21</td>
</tr>
<tr>
<td><em>Provides limited evidence of ideas generation and/or exploration of existing ideas</em></td>
<td>15</td>
</tr>
<tr>
<td><strong>Consideration of design factors relevant to the Major Design Project</strong></td>
<td></td>
</tr>
<tr>
<td>Analyses a range of design factors relevant to the PSE and applies them</td>
<td>14</td>
</tr>
<tr>
<td>Describes a range of design factors relevant to the PSE and applies them</td>
<td>8</td>
</tr>
<tr>
<td>Describes some design factors relevant to the PSE and applies them</td>
<td>7</td>
</tr>
<tr>
<td>Provides some evidence of design factors, most of which are relevant to the PSE and applies them</td>
<td>1</td>
</tr>
<tr>
<td>Provides limited evidence of design factors, few of which are relevant to the PSE</td>
<td></td>
</tr>
<tr>
<td><strong>Appropriate Research and Experimentation of, materials, tools, techniques and testing of design solutions.</strong></td>
<td></td>
</tr>
<tr>
<td>Undertakes, evaluates and applies a range of appropriate research, experimentation and design solution testing in the development of the MDP</td>
<td>35</td>
</tr>
<tr>
<td>Undertakes, evaluates and applies appropriate research, experimentation and design solution testing in the development of the MDP</td>
<td>29</td>
</tr>
<tr>
<td>Undertakes, evaluates and applies some appropriate research, experimentation and design solution testing in the development of the MDP</td>
<td>28</td>
</tr>
<tr>
<td>Evaluates and/or applies limited appropriate research and/or experimentation and/or design solution testing</td>
<td>22</td>
</tr>
<tr>
<td>Minimal evidence of appropriate research and/or experimentation and/or design solution testing</td>
<td>21</td>
</tr>
<tr>
<td><strong>Application of conclusions</strong></td>
<td></td>
</tr>
<tr>
<td>Applies conclusions drawn from research and experimentation and design solution testing to the MDP</td>
<td>15</td>
</tr>
<tr>
<td>Demonstrates some application of conclusions drawn from research and experimentation and design solution testing to the MDP</td>
<td>14</td>
</tr>
<tr>
<td>Demonstrates some selective application of conclusions drawn from research and/or experimentation and design solution testing</td>
<td>8</td>
</tr>
<tr>
<td>Demonstrates limited application of conclusions drawn from research and/or experimentation and design solution testing</td>
<td>7</td>
</tr>
<tr>
<td>Demonstrates minimal application of conclusions drawn from research and/or experimentation and design solution testing</td>
<td>1</td>
</tr>
<tr>
<td><strong>Identification and justification of ideas and resources used</strong></td>
<td></td>
</tr>
<tr>
<td>Justifies the selection and use of ideas and resources used for the PSE</td>
<td>35</td>
</tr>
<tr>
<td>Explains the selection and use of ideas and resources used for the PSE</td>
<td>29</td>
</tr>
<tr>
<td>Describes the selection and use of ideas and/or resources used for the PSE</td>
<td>28</td>
</tr>
<tr>
<td>Describes some ideas and/or resources used in the PSE</td>
<td>22</td>
</tr>
<tr>
<td>Lists few ideas and/or resources used in the PSE</td>
<td>21</td>
</tr>
<tr>
<td><strong>Use of communication and presentation techniques</strong></td>
<td></td>
</tr>
<tr>
<td>Succinctly demonstrates a range of appropriate quality communication and presentation techniques</td>
<td>15</td>
</tr>
<tr>
<td>Demonstrates varied and appropriate communication and presentation techniques in a concise manner</td>
<td>14</td>
</tr>
<tr>
<td>Demonstrates appropriate communication and presentation techniques</td>
<td>8</td>
</tr>
<tr>
<td>Demonstrates a limited range of communication and presentation techniques</td>
<td>7</td>
</tr>
<tr>
<td>Demonstrates minimal communication and presentation techniques</td>
<td>1</td>
</tr>
<tr>
<td><strong>Evidence and application of practical skills to produce a quality project</strong></td>
<td></td>
</tr>
<tr>
<td>Applies a range of high-quality practical skills in the development of the PSE</td>
<td>35</td>
</tr>
<tr>
<td>Applies a range of sound practical skills in the development of the PSE</td>
<td>29</td>
</tr>
<tr>
<td>Applies sound practical skills in the development of the PSE</td>
<td>28</td>
</tr>
<tr>
<td>Applies basic practical skills in the development of the PSE</td>
<td>22</td>
</tr>
<tr>
<td>Applies minimal practical skills in the development of the PSE</td>
<td>21</td>
</tr>
</tbody>
</table>

Candidates may achieve 22–28 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.

Candidates may achieve 15–21 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.

Candidates may achieve 8–14 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.

Candidates may achieve 1–7 marks as indicated above OR by satisfying a combination of the criteria for other mark ranges.
<table>
<thead>
<tr>
<th>Component</th>
<th>10</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT EVALUATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recording and application</td>
<td>Critically evaluates aspects of the PSE throughout its entire</td>
<td>Evaluates some aspects of the PSE throughout its entire development</td>
<td>Judges the success of some aspects of the PSE through stages of its</td>
<td>Describes, with little justification, the success of several aspects of the PSE or exhibits evaluation in the PSE’s development</td>
<td>Describes a functional and/or aesthetic aspect of the PSE</td>
<td>Names a functional or aesthetic aspect of the PSE</td>
<td>Minimal and/or inaccurate description of the impact of the PSE on the individual, society or the environment</td>
<td>minimal and/or inaccurate description of the impact of the PSE on the individual, society or the environment</td>
<td>minimal and/or inaccurate description of the impact of the PSE on the individual, society or the environment</td>
</tr>
<tr>
<td>of evaluation procedures</td>
<td>development</td>
<td>development</td>
<td>development</td>
<td>development</td>
<td>development</td>
<td>development</td>
<td>development</td>
<td>development</td>
<td>development</td>
</tr>
<tr>
<td>throughout the design project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis and evaluation of</td>
<td>Analyses and critically evaluates the functional and aesthetic</td>
<td>Explains the functional and aesthetic aspects of the PSE</td>
<td>Describes some functional and/or aesthetic aspects of the PSE</td>
<td>Describes a functional and/or aesthetic aspect of the PSE</td>
<td>Names a functional or aesthetic aspect of the PSE</td>
<td>minimal and/or inaccurate description of the impact of the PSE on the individual, society or the environment</td>
<td>minimal and/or inaccurate description of the impact of the PSE on the individual, society or the environment</td>
<td>minimal and/or inaccurate description of the impact of the PSE on the individual, society or the environment</td>
<td>minimal and/or inaccurate description of the impact of the PSE on the individual, society or the environment</td>
</tr>
<tr>
<td>functional and aesthetic aspects of</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
<td>aspects of the PSE</td>
</tr>
<tr>
<td>design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final evaluation with respect to the</td>
<td>Critically evaluates the impact of the PSE on the individual,</td>
<td>Explains the impact of the MDP on the individual and/or society and/or the environment</td>
<td>Describes the impact of the MDP on the individual and/or society and/or the environment</td>
<td>Describes the impact of the MDP on the individual and/or society and/or the environment</td>
<td>Describes the impact of the MDP on the individual and/or society and/or the environment</td>
<td>Describes the impact of the MDP on the individual and/or society and/or the environment</td>
<td>Describes the impact of the MDP on the individual and/or society and/or the environment</td>
<td>Describes the impact of the MDP on the individual and/or society and/or the environment</td>
<td>Describes the impact of the MDP on the individual and/or society and/or the environment</td>
</tr>
<tr>
<td>project’s impact on the individual,</td>
<td>society and the environment</td>
<td>society and the environment</td>
<td>society and the environment</td>
<td>society and the environment</td>
<td>society and the environment</td>
<td>society and the environment</td>
<td>society and the environment</td>
<td>society and the environment</td>
<td>society and the environment</td>
</tr>
<tr>
<td>society and the environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relationship of the final product,</td>
<td>Analyses the relationship of the PSE to the criteria for success</td>
<td>Compares the relationship of the PSE to the criteria for success</td>
<td>Checks the PSE against the criteria for success identified in the</td>
<td>Checks the PSE against some of the criteria for success identified in the project proposal, with little or no explanation</td>
<td>Does not clearly relate the PSE to the criteria for success identified in the project proposal</td>
<td>Does not clearly relate the PSE to the criteria for success identified in the project proposal</td>
<td>Does not clearly relate the PSE to the criteria for success identified in the project proposal</td>
<td>Does not clearly relate the PSE to the criteria for success identified in the project proposal</td>
<td>Does not clearly relate the PSE to the criteria for success identified in the project proposal</td>
</tr>
<tr>
<td>system or environment to the project</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
<td>identified in the project proposal</td>
</tr>
<tr>
<td>proposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Candidates may achieve 7–8 marks as indicated above OR by</td>
<td>Candidates may achieve 5–6 marks as indicated above OR by</td>
<td>Candidates may achieve 3–4 marks as indicated above OR by</td>
<td>Candidates may achieve 1–2 marks as indicated above OR by</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>satisfying a combination of the criteria for other mark ranges.</td>
<td>satisfying a combination of the criteria for other mark ranges.</td>
<td>satisfying a combination of the criteria for other mark ranges.</td>
<td>satisfying a combination of the criteria for other mark ranges.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

www.BOSTES.nsw.edu.au
Question 12 (5 marks)

There is growing consumer demand for innovative products that enhance the quality of life.

Explain a range of factors that contribute to the success of these products.

The success of a new product relies on the appropriate timing of the product's release. This involves ensuring the consumer base targeted was disposable funds available. The main factor which effects the success of a product is Western culture has become a disposable society. People are always looking for the next new thing to have. It's not so much that people need it, it's more they want it so they appear to be keeping up with latest trends. This factor also leads to the design of the innovated product. For the design to be successful it is required to have new innovated changes to the previous design. For example, a mobile phone, the first iPhone everyone wanted because it was new and different to other phones. Once iPhone 4 was released even though it was still an iPhone the innovated differences in technology made society want the newest model.
Question 13 (8 marks)

Many products are designed to have a limited ‘lifespan’ – that is, they are designed to be replaced rather than repaired.

(a) Give reasons why designers develop new products with a limited ‘lifespan’.

Giving a limited ‘lifespan’ to products results in huge financial gain to the designers as one single consumer may buy a product several times. Designing products with limited lifespan also allows the designer to learn from the products initial life and evaluate and improve on it.

(b) Explain the effects on society and the environment of designing products with a limited lifespan.

The rate at which products are becoming ‘obsolete’ is becoming faster and faster. This is terrible for the environment as there are now pile ups of supposedly immovable products. However if the designer takes into consideration the state of the environment, then society and the environment will benefit if a product is designed so that the old parts can be salvaged and re-used then ultimately it will be greater for society despite the initial extra cost of re-buying products as it will be our environment which will prosper from these actions. This being said, sustainable products are have the greatest impact upon society and the environment being economically and environmentally beneficial.
Question 12 (5 marks)

There is growing consumer demand for innovative products that enhance the quality of life.

Explain a range of factors that contribute to the success of these products.

Cost: this does not only include the cost as in finance but environmental. Consumers would buy something that is harmless as well as affordable according to how well it works.

Aesthetics: the look of a product is now considered one of the most important factors that consumers look at before buying.

Recyclability & Durability: a product should have a long life-span if not recyclable or reusable.

Aesthetics
Obsolescence
Cost
Durability
Question 13 (8 marks)

Many products are designed to have a limited ‘lifespan’ – that is, they are designed to
be replaced rather than repaired.

(a) Give reasons why designers develop new products with a limited ‘lifespan’.

 designers develop new products with a limited
 lifespan because it is much more cost-worthy
 to replace than it is to repair and the product
can be cultured to work better and be
re-made completely.

(b) Explain the effects on society and the environment of designing products with a
limited lifespan.

The effects on society and the environment
of designing a product with a limited lifespan
is that the product can be re-made and replace
with a better newer model but the
older model of the product will be disposed
of in landfills or incinerated. Another
effect on the environment is the material to
create the product. If it will be replace the
material of the new one will not be
another. A factor that product limited life span
that will effect is society peoples money
will be used buying the old one and then
a newer model will come out and they
have to buy the newer version.
Question 12 (5 marks)

There is growing consumer demand for innovative products that enhance the quality of life.

Explain a range of factors that contribute to the success of these products.

The quality of the product, how the aesthetic looks, does the product have the colours of it and which age is it targeting by how easy the functions work...
Question 13 (8 marks)

Many products are designed to have a limited ‘lifespan’ – that is, they are designed to be replaced rather than repaired.

(a) Give reasons why designers develop new products with a limited ‘lifespan’.

**Designers develop products with lifespans so that when they make a newer model, the customer is forced to buy.**

(b) Explain the effects on society and the environment of designing products with a limited lifespan.

**The effects this has on the environment is that everybody stays updated and is given a newer model to purchase. This gives the designers to recycle older models to make better ones.**
a)
A designer would undertake many activities to determine whether an existing product needs further development. They would do primary and secondary research to come to a conclusion whether to embark on the development.

A designer would hand out prepared surveys that included questions including whether or not they owned the product, would they like to have more features and functions on it. They could also run interviews for various people and even some companies to see if they have good sales on the product, what features they already had.

Secondary research would include looking at existing product and producing positive, negative and interesting tables to evaluate what is needed more in a new model of the product.

The designer also could look at articles written by people of the product to find out specific things that they find work, don't work, what they would like more of the product.

Ultimately, the designer would only need to research to find out if they need to further develop an existing product or if it is fine and doesn't need anymore development.
b) There are many reasons why it may be necessary to further develop a current product even though it is still functional and aesthetically appealing. This is because there are new social trends emerging, new technologies emerging, people are becoming more aware of the environmental impact of the product. Current social trends have influenced designers to produce new and improved products to meet this trend. Facebook has become an extremely popular trend that has influence hundreds of companies to include into their product. Apple has allowed the application of facebook onto their phones to be used, allowing them to sell hundreds of iPhones to be sold for the use of the application. Sometimes it is the emerging trend that is forcing companies to compete on a higher level with other companies to sell their product. When the phone was released, phone companies such as LG and Samsug quickly released a similar smartphone look at a lower cost to compete with the consumer demand for a smartphone. Even though their previous phones where aesthetically appealing and functional, the company produced a phone so as
to be able to compete with a larger, more popular company.
Similarly, emerging technologies do this, when colour television was produced, people wanted to quickly purchase one and throw out their old black-and-white television. Even though it was functional and still aesthetically appealing to the consumers, people wanted to have a better, more modern version. This is similar to the recent technology of having a 3D television. Although peoples’ televisions were perfectly capable of producing a clear image, some just want to have the newest technology available to them to use. At times, emerging technologies such as a faster reaction phone and better quality phone influences people to want to purchase a new model. This is then mass produced by other companies so that they can compete with a similar producing company. Thus, even though peoples’ current product is still functional and aesthetically appealing, some consumers just want to have the most state-of-the-art technology.

However, sometimes consumers become more aware of the environmental impact of their product
resulting in the production of a new product even though the current model is still functional and aesthetically appealing. Most companies aim to produce their products with less environmental impact. Cars have been around for many years which produce many CO₂ emissions causing global warming. Some car companies have produced cars that are more fuel efficient, like Ford, and even an electric car, recently released by Toyota. This is because consumers are more aware of the impact of their vehicles on the environment and want something more environmentally friendly. Even if their previous car was perfectly fine and still aesthetically appealing, they want to reduce their carbon footprint on the environment. Thus, the need for a more environmentally friendly product is wanted by consumers even though their current product is still functional and aesthetically appealing.

Ultimately, consumer demands guide designers to produce and develop a new product even if a current model is still perfectly functional and aesthetically appealing.
an awareness of the environmental impact guide designers to further develop an existing product.