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Technology

How to get an H1 in the Leaving Cert Technology Project

by **Barry S**

Barry S got a H1 in higher Leaving Cert Technology. He's now studying Biological and Chemical Science in University College Cork. Here he shares what he learned.

Technology is a relatively new subject on offer for Leaving Certificate students. Technology combines disciplines from various other subjects. The practical project has a lot of less restrictions than other practical projects in engineering and construction studies. What you make is up to you, provided you satisfy the brief!

The practical project and portfolio make up 50% of your overall grade in this subject so it is vital that you give it your best shot! If you work hard and meet your deadlines you will succeed and do well!

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The Project

- The brief for technology comes out every year during October/November. As soon as you get the brief you need to start planning. It will be easier to work on something you're interested in. Remember however, technology is a relatively new subject and the time they allocate for the practical work is very tight. With hard work and smart planning, you will get it finished, but it will be tight!
- It is your project, not your teachers or your friends. Listen to everyone's advice but the decision is ultimately yours. Your project needs to be unique and functional. It needs to solve a problem and be useful.

Planning & Documenting

- Document and photograph everything! It is of vital importance that you have photographic evidence of every step of your project, this will be important when it comes to drawing up the portfolio later.
- You will need to plan out every step of your project if you want to get it done within the deadline. You will of course need to plan out your design and the materials you wish to use, but you will also need to plan when and where you will be able to have access to the heavy machines in your school, when and where you will be able to source specialised components or materials if necessary, when you're going to finish the various pieces in your artefact and many more. Planning is key!

Materials

- Many overlook this section of the project and go for the cheapest and easiest materials on hand. You should really try and have at least one unique and uncommon material in your final project. Of course, use the standard aluminum, oak, Perspex materials for most of your project, but try and get that unique aspect in there somewhere.

Manufacturing

- This is perhaps where technology varies most from the other practical projects in terms of manufacturing restrictions. You have no restrictions in what machines you can and cannot use or how often you can use them when you're making your technology project. You will save time by designing up your individual components on a CAD software and then allowing a CAM machine such as a 3D printer or a laser cutter make them for you. While your piece is being made by the machine you can be working on a different piece of your project, saving you time!
- If using a CAM machine to make your pieces, it is vital that you then finish each piece by hand. Use draw filing, sandpaper and Emory paper to remove any of the marks left behind by the machine manufacturing.

Waste Management

- Technology is a new subject that is very much tied in with the modern world. It is very important that you try and cut down on the amount of material you waste when making your project, and document it!

Environmental Impact

- This is an area you cannot simply ignore. Examiners really look to see if you've considered the environment in your design and if you've managed to manufacture your artefact in a sustainable and friendly manner.
- Make sure to consider the embodied energy and embodied carbon of each material you use

along with the energy requirements of each process you plan on carrying out.

Electronics

- Electronics and electro-mechanical components are nearly always required to be included in leaving cert technology projects. Using a printed circuit board such as a Genie E18 will allow you to easily insert and programme each individual component. Be sure to incorporate smart wire and cable management so that your finished project looks neat and presentable.

How is it graded?

- The project is worth 100 marks in total, which makes up 25% of your overall grade so it is vital that you try your very best to minimize losing marks wherever possible!

Breakdown of marks allocated

Number of Marks	What they're looking for
10	Does the design meet the brief & specifications?
15	Is the design original & creative in design?
30	Are a wide range of skills and assembly methods used?
20	Does the finished artefact function and fulfil its intended purpose?
15	Is the finished project of a high production quality and finished well?
10	Is the finished project neatly presented and correctly labelled?

Does the design meet the brief & specifications?

- When you are working on your project you shouldn't think of it as trying to gain the most amount of marks possible, but more so as trying to minimize the amount of marks lost. The examiners are looking to give you as many marks as possible. It is vital that you meet the requirements of the brief because otherwise the examiner will be forced to dock you marks in nearly every section.

Is the design original & creative?

- You cannot copy or replicate an existing product. You must also make sure that no other project in your class is too similar to yours. You need to stand out from the crowd, so don't take the easy route, experiment and work hard!

Are a wide range of skills and assembly methods used?

- This is where the most marks are going. The examiner wants to see if you, the candidate has learned all that there is to learn in the technology leaving certificate course. They're looking to see if you know how to use all the various machines in the technology room. Can you use a lathe? Do you know how to operate a vacuum former?
- Another great way to pick up marks in this section is the use CAD and CAM programmes. Examiners love to see pieces manufactured using a laser cutter, CNC lathe or a 3D printer. Just be careful not to overdo it, it is still important that the examiner knows you are able to use the old-fashioned hand tool methods just as well.

Does the finished artefact function and fulfil its intended purpose?

- There are a lot of marks going for this section, and therefore it is so important that you strive to get your project finished ahead of the deadline. While you can still get marks if your finished artefact doesn't work, you will be at a serious disadvantage if you're looking for a high grade. Here the examiner is looking to see if your project moves and works. Does it do what it says it will do? Many students spend too much time cutting out and assembling their physical

project but neglect to spend time wiring it up and programming it to function. If you do this then you will lose lots of marks in this section, so plan your time well and work hard!

Is the finished project of a high production quality and finished well?

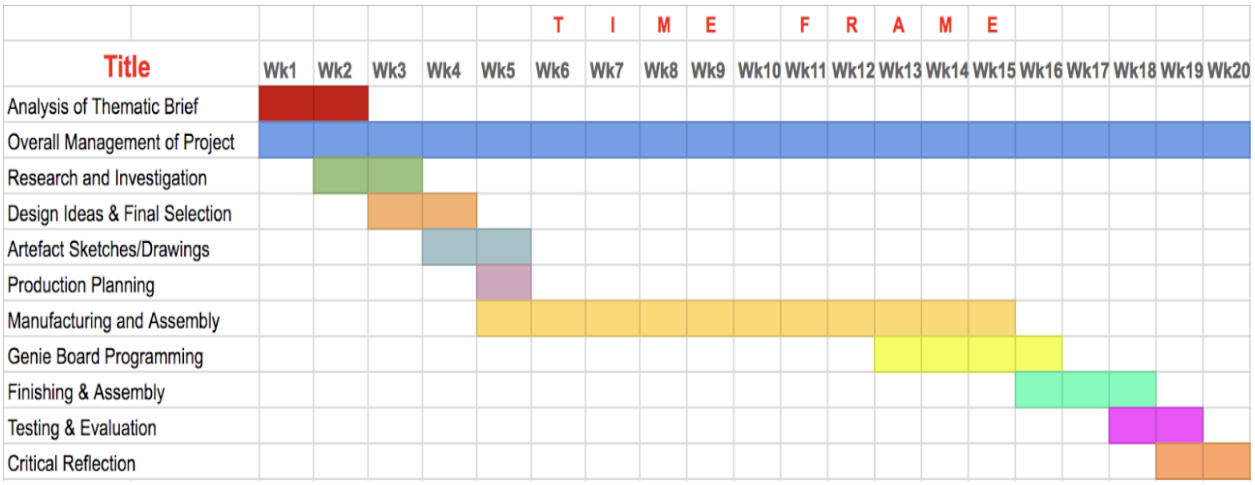
- This is another easy section to pick marks up in. Here the examiner is looking to make sure you are a good craftsman. You need to ensure that all the edges of your various pieces are finished to a high standard i.e. cross filed, draw filed, sanded, wire wooled and Emory papered. The examiner can take marks off you for any little scratch, dent or ding he or she sees in your project.

Is the finished project neatly presented and correctly labelled?

- Provided your project is fully finished you shouldn't have to worry too much about this section. Here the examiner is just looking to see if every part is clearly visible and working in your project and that you have correctly labelled components where necessary.
- If you do not manage to get your project finished on time, make sure you label each individual component in the plastic bag, this will make the examiner's life easier and hopefully help you pick up a few marks.

Timing

- I cannot express how important it is that you plan out every step of your project and stick strictly to your timing. You will be under pressure to finish your project regardless, everyone will be, but if you plan well in advance you will get it finished.
- At the start of your project make out a Gantt chart and try and stick to it as rigorously as possible, then if necessary, make updated ones throughout the year as you readjust the areas where your time is needed.


T I M E F R A M E
Title
Wk1 Wk2 Wk3 Wk4 Wk5 Wk6 Wk7 Wk8 Wk9 Wk10 Wk11 Wk12 Wk13 Wk14 Wk15 Wk16 Wk17 Wk18 Wk19 Wk20
Analysis of Thematic Brief
Overall Management of Project
Research and Investigation
Design Ideas & Final Selection
Artefact Sketches/Drawings
Production Planning
Manufacturing and Assembly
Genie Board Programming
Finishing & Assembly
Testing & Evaluation
Critical Reflection

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The Portfolio

- Your portfolio is essentially a written account of how you made your project. From how you generated your various ideas, how you carried out research, what materials you used and why, how you manufactured your artefact and everything else you do during the project.
- Your portfolio needs to encompass everything you do, leave nothing out! It is very easy to score very high grades if you work hard on your portfolio, include detailed accounts of every step of the journey and produce clean, neat, accurate working drawings and free-hand sketches.

How should my portfolio be laid out?

- Remember, this is just a guide, you should use this along with your teacher's guidance to create your own portfolio.

Cover Page	The first page of your document, exam number & picture of artefact go here
Contents	List every chapter & corresponding page numbers here
Analysis of Thematic Brief	Discuss the assigned brief, summaries the requirements, explain the key words
Overall Management of the Project	Discuss your restraints, your budget, your timeframe
Environmental Impact	Present your research on how you will make your project baring the environmental impact of the process in mind. Discuss how renewable/reusable each material will be along with your drawing and manufacturing methods. This section is very important!

Research and Investigation	Talk about all the research you did for materials, processes etc., analyse existing solutions, discuss anthropometrics and ergonomics here too.
Development of Design Ideas	Include at least 3 drawings of your initial designs along with a discussion mechanisms and materials in each. Then have a final drawing of the final idea. These should be hand done sketches
Selection & Justification of Chosen Design	Weigh up the advantages and disadvantages of each idea and state why you chose the one you did.
Sketches & Designs for Manufacture	Include all your CAD drawings here, make sure they look neat and well-presented and have all the necessary dimensions clearly displayed. Include circuit diagrams here if necessary.
Production Planning	Analyse the costings of each component of your artefact and discuss and justify the overall cost. Include all work breakdown structures, Gantt charts, critical path diagrams etc. here.
Product Realisation	Discuss the sequence of manufacturing here and each process you carried out and why. This section is like the instruction book for making your project. If someone picks it up, they should be able to replicate your finished artefact from what they read. Be clear and concise and leave no tiny detail out.
Testing, Evaluation & Critical Reflection	Talk about what parts you tested, how you tested them and why and what you changed as a result of your testing.

Online sources / References	Include the URL to any image you used online in your portfolio here.
Appendix	Place any loose pages such as original sketches etc. in here.

- It is important to remember that marks do go for presentation in the portfolio so make sure to make use of a colour scheme and correct headings throughout your document. If you put in the time and work you should get good marks in your portfolio, make sure it is neat, packed with information and original and clearly your own work.

Finally, I would like wish you the best of luck in the exam! You will be fine. ☺