School of Computing, Engineering and Information Sciences
Northumbria University

EN0313
Assignment

Introduction

This assignment is worth 50% of the module portfolio value. The aim of the assignment is to develop a complete business plan for a project to develop a new product or process. The students will learn how to collect the facts and to make reasoned arguments and sound judgements based on the technology requirements and the business case. They will to learn how to structure the plan in a clear and meaningful way to form the base for a new business.

Learning Outcomes

Specific learning outcomes include the following:
1) Develop a specification for a new engineering product
2) Develop a project development plan based on both the technical & business issues
3) Analyse the costing issues in New Product Development and create a cost analysis
4) Carry out a funding analysis for the development
5) Develop and present a complete project development plan based on both the technical and business issues

Applications of the above learning outcomes in this assignment are as follows:
This assignment addresses Learning Outcome 5 above. With the development and justification of a project plan, a deeper understanding of the issues of all the ILOs, 1 to 5, is also gained. This will lead to a more comprehensive understanding of all of the requirements for the development of a technical product.

Assessment

This assignment contributes 50% of the final mark of the module.

An assignment is assumed to be the work of an individual. The University regulations apply to all coursework. Copying original work is not acceptable nor is copying large sections from specific texts. Where other material is quoted, this should be made clear in the text and acknowledgement given by means of a reference.

Hand in date for the assignment is: **15th May 2009, by 2.30pm at the school office.** The report produced for this assignment should be no greater than 25 sides of A4 including all diagrams and text.

Assessment Specification

This assignment involves the preparation of a proposal for a funding application. This could be for grant or venture capital (VC) funding or to present to a bank or potential business partners.

You are at liberty to "invent" a product idea of your own. This can be any technology-based product; mechanical, electrical, electronic, hardware or software (it can even be chemical or biotechnological if you wish).

You must prepare a plan for the development and exploitation of the product for a 5-year period.

Bear in mind that the funder is looking for good, robust arguments to support your case rather than absolute accuracy on costs, timescales, etc.

Use the following section headings that will give you a structure for this.

1.   Summary & Objectives (1-2 pages)

This should be a half page that summarises the whole proposal. It is designed to be read by the busy evaluator and must give a clear idea of what you intend to do.

2.   Description of product (1-3 pages)

This should contain a *functional specification*, *a requirement specification*, and a *detailed technical specification*. It may involve diagrams but should give a clear idea of **what the product is** and **what it does**.

3.   Technology to be employed (2-4 pages)

This should compare and contrast a number of suitable technologies for the design and manufacture of the proposed product or process. State the technology you have chosen and clearly give the reasons why you have chosen it. What methods will you use for the design and test? Include a flow diagram of the design route.

4.   Description of the market (2-4 pages)

Outline the market for the product and show where your product fits in. What is the competition, how much is the market worth and what share of that market will you acquire? Why will customers buy your product instead of someone else's?

5.   Financial plan (1-3 pages plus appendix)

How much money do you need for the development and how will it be spent? Show the spending/earnings profile for the five years (you will have to make the figures up here but we are looking for consistency of argument rather than literal truth). What will be the selling price, what will it cost to produce? How much will it cost to

develop and identify your Fixed and Variable costs? How many will you sell? Show when you achieve breakeven and give the Return On Investment (ROI) over the 5 years.

6. Development plan (1-3 pages with Gantt Chart as appendix)

This should be a plan to cover both the development and manufacture of the product (you may also wish to include trials or customer evaluation – what ever is necessary to get the product to market). Show the plan as a GANTT chart but use text to describe what is going on. Where do you do the work in-house and where do you use subcontractors? Give Milestones and Deliverables. Describe each task in the plan.

7. Funding (1-2 pages)

Explain what funding sources you will use throughout the life of the project. Use a diagram showing where it will come in and how much you will need at each stage.
For each source of funding show:

      a. the source
      b. the amount
      c. when it appears in the project
      d. how it will be used
      e. an exit route for the funder
      f. what you will give in return for that investment

You should show funds coming in from European sources or national, e.g., Grant for R&D, NESTA, Business Angels and Venture Capital at least – you may want to add some other pots of money, as required.

You may find it appropriate to do the above as a table

8. Risks (1-2 pages)

Draw up a table of the risks involved. Have 5 columns: Risk, importance (scale from 1-5), stage at which the risk appears, consequence of the risk and action taken to reduce the risk.

The risks can be technical, commercial or financial.

9. Conclusion (1-3 pages)

What are the significant economic benefits of this project to your company (show predicted sales figures for the next 3 years and the return of investment)? How will this funding benefit / drive the project forward? Could you do it without funding? Does this allow you to bring together the right team to grow the company?   Give a statement to persuade funders to invest in your business.

General points

- When it comes to figures, use your imagination. We are looking for consistency of argument rather than accuracy.
- Don't put in lots of detail. Work for a clear argument and make sure that your case is robust, i.e. each part of your proposal must support the others
- Assume you will be setting up a limited company as a vehicle for this development. This will allow you to give away bits of the company in exchange for investment (note that some sources of finance, e.g. Grants for R&D, may not require any return)
- Have a look at the application forms for Grant for R&D and NESTA. These will give you some idea of what such bodies look for by way of information and it may help you structure this proposal – you can even use some of it as a template
- If you were presenting this, e.g., to a Venture Capital provider you would have to give clear, simple but robust arguments. They have limited time and are not interested in padding that was not directly related to the case in hand.
- Schedule your work and do not leave things to the last minutes

To obtain an "A" grade:

A report with a detailed product or process description, a comprehensive project plan (including Gantt chart) and a comprehensive analysis of the financial case for the project, laid out clearly according to the sections above. Students providing good, reasoned arguments and showing sound judgements for the choice of technology and all the planning and financial decisions made. Students showing good insight into the requirements of a product/process development plan.

To obtain a "D" grade:

A basic application with adequate, but limited, information on the product/process development. Poor rationale and weak arguments behind decisions and choices made. Lack of clarity in the layout of the proposal. Only basic insight into the requirements of a development plan.

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