Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

LEVEL 7 ASSESSMENT SPECIFICATION

Student Name:		Student ID Number:	
Programme:	• MSc International Innovation Management • BIIM Innovation Management Level 7		
Module code:	ACPA 7006	Contribution to Overall Assessment (%):	75%
Lecturer:	Alan Mumby	Internal Verifier:	Graham Howe
Assignment title	Management of NPD Assessment B Create the Design Brief	Word Count:	4,500
Submission deadline:	12 noon 30th January 2023	Return date of provisional marks and written feedback:	TBC
Submission Method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) Alternative submission method (if applicable): Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 50%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty/referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

Module Learning Outcomes (from module syllabus)
Demonstrate a systematic understanding of the key elements that contribute to the successful gathering of market knowledge for the new product development.

TASK DESCRIPTION

Scenario Background

You are NPD and Innovations Manager of a Carmarthen-based SME which currently specialises in the manufacture of electronic breathalyser systems (See the website of Lion Laboratories for an exemplar product, for example the Lion Alcometer 500.)

The market for these devices is predominantly to police and security forces, but there is a limited personal market for the smallest of these systems. The Company has however identified a potentially large personal market in France and Germany where it is becoming a legal requirement for all drivers to have a such a breathalyser as part of their mandatory safety equipment (e.g. 'gilet jaune', red warning triangle etc.) to be carried in each vehicle.

A new product development project

Through a Knowledge Transfer Partnership with a local university, the Company identified an opportunity to extend the chemical alcohol detector system which is at the heart of their breathalyser products to cover the detection of other organic materials, including those generated in the breath as a result of various virus infections. The new system has been trialled successfully in the laboratory and the necessary patent applications have been registered.

In light of the current Coronavirus pandemic, the Company see great potential in developing a product that can meet both clinical and personal requirements for such virus detection and are therefore anxious to bring the new product to market as soon as possible.

However, the nature of the changes to the detector system is such that the existing breathalyser products cannot be employed as the basis for a new 'Virus Detect' product. Consequently, a completely new product design is required.

The Company have successfully prototyped the electronic and mechanical systems which form the new product and you have engaged a London-based company to design the 'physical envelope' and appearance of the new Virus Detector.

The company have decided to adopt a similar strategy to that which they use for their current range of breathalyser products, i.e. sourcing the electronics and mechanical elements of the product externally, and undertaking final assembly, testing, packing and shipping at the company's Carmarthen factory.

The Company CEO and Finance Director have jointly decided to seek alternative suppliers to those currently used, partly as a means of seeing if they might, as a result, be able to drive down the manufacturing costs of their existing products.

Project parameters and assumptions

For the purposes of this assessment you may assume that, on the basis of the prototype product testing, the company has already gained certification for the new Virus Detect from the various medical device regulatory agencies (In reality, this would be unlikely!).

The new product's electronics will be contained in a single circuit board. This will need to be sourced in a fully assembled and tested form.

The mechanical element of the detector (basically the breath sample capture system) will be fabricated from injection moulded parts. The Company have not yet decided whether to source this element as a fully assembled unit (as they do for their breathalyser products), or whether to source the mouldings separately and assemble the unit in house.

Preliminary research has indicated that China or Malaysia remains the most favourable source of electronic circuit boards - and that the UK or Europe would, for now, be seen as favoured source for the moulded parts.

Specifying and sourcing the external casing will depend upon the final form of the product as generated by the product design company.

The final details of the overall product PDS is therefore still to be determined although the design specification of the individual elements could be defined if required.

The projected manufacturing volumes are 500,000 in the first year, and 5 million per annum afterwards.

Task: The development of a Product Design Brief

As the NPD and Innovation Manager you're required to produce a design brief for all the company's managers; design & engineering, manufacture, finance, marketing, logistics etc.

The brief will outline what is required to bring the product into existence - and will inform the various mangers within the company of the various touch points where their input or insight will be required or just appreciated.

The Brief you provide will have within it the following information.

1. A synopsis of the product and its potential as an NPD Project.
2. An analysis of the elements and architecture of the product that need to be considered.

   N.B. Examples of the elements to be considered may well include (*not exclusive*) :

aesthetics	repair and maintenance	prototyping
branding	manufacturing facilities	social & cultural
company constraints	market constraints	quality
competition	materials	reliability
customer	packaging	safety
circular economy	IP	size
documentation	performance	shelf life and storage
environment	politics	shipping
ergonomics	processes	standards & specifications
legal	product cost	testing
life in service	product life span	time scale
		weight

Module Code	ACPA7006
Title	Management of New Product Development
Date	02/12/2022
Level	7
Credits	20
Pre-Requisites	None

AIM(S)

- To evaluate the primary elements of the new product development process.
- To develop the knowledge, skills and expertise necessary to plan, implement and manage a successful product development process.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Systematically document and evaluate a detailed plan for an appropriate new product development process for a given product scenario.
- Make critical judgements on alternative approaches to new product development based on technological, strategic and financial / business considerations.
- Comprehensively understand the challenges inherent in incremental and disruptive new product development practices.

INDICATIVE CONTENT

- Knowledge acquisition and evaluation
- Business opportunity appraisal
- Product design specifications
- Distributive new product development
- Concept generation
- Prototyping and evaluation
- Technical and market testing
- Market introduction

GUIDANCE FOR STUDENTS IN THE COMPLETION OF TASKS

NOTE: The guidance offered below is linked to the five generic assessment criteria overleaf.

1. Engagement with Literature Skills

Your work must be informed and supported by scholarly material that is *relevant* to and *focused* on the task(s) set; you should make use of scholarly reviews and primary sources, as appropriate (for example, refereed research articles and/or original materials appropriate to the discipline).

You should provide evidence that you have accessed a wide *range* of sources, which may be academic, governmental and industrial; these sources may include academic journal articles, textbooks, current news articles, organisational documents, and websites. You should consider the *credibility* of your sources; academic journals are normally highly credible sources while websites require careful consideration/selection and should be used sparingly.

Any sources you use should be current and up-to-date, mostly published within the last five years or so, though seminal/important works in the field may be older. You must provide *evidence* of your research/own reading throughout your work, using correctly a suitable referencing system, including in-text citations in the main body of your work and a reference list at the end of your work.

Your background research should show how the key determinants in the process of committing to develop the innovation from the relevant sources.

2. Knowledge and Understanding Skills

At this level, you should be able to demonstrate a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of your academic discipline, field of study or area of professional practice, with a comprehensive understanding of techniques applicable to your own research or advanced scholarship.

Through your work, demonstrate the processes and technologies which the company used to carry this development forward.

Your work must demonstrate your growing mastery of these concepts, principles, current challenges, innovation and insights associated with the subject area. *Knowledge* relates to the facts, information and skills you have acquired through your learning. You demonstrate your *understanding* by interpreting the meaning of the facts and information (knowledge). This means that you need to select and include in your work the contemporary concepts, techniques, models, theories, etc. appropriate to the task(s) set. You should be able to explain the theories, concepts, etc. meaningfully to show your understanding.

Your mark/grade will also depend upon the *extent* to which you demonstrate your knowledge and understanding; ideally each should be complete and detailed, with comprehensive coverage.

3. Cognitive and Intellectual Skills

You should be able to: evaluate critically current research and advanced scholarship in the discipline; evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses; deal with complex issues both systematically and creatively to make sound judgements in the absence of complete data. Your work must contain evidence of logical, analytical thinking, evaluation and synthesis. For example, to examine and break information down into parts, make inferences, compile, compare and contrast information. This means not just describing what! But also justifying: Why? How? When? Who? Where? At what cost? At all times, you must provide justification for your arguments and judgements. Evidence that you have reflected upon the ideas of experts within the subject area is crucial to you providing a reasoned and informed debate within your work.

Your choice of methodologies to gather data and information must be rigorously defended. Furthermore, you should provide evidence that you are able to make sound judgements and convincing arguments using data

and concepts. Sound, valid, persuasive conclusions are necessary and must be derived from the content of your work. Where relevant, alternative solutions and recommendations may be proposed.

Consider the barriers and analyse the risks faced by the company in developing this innovation.

Ensure that you provide your own critique of the whole innovation process, and an evaluation (to the extent to which one is possible in the case of vey recent innovations) of the success of your chosen innovation.

4. Practical Skills

At level 7, you should be able to demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline. This includes acting autonomously in planning and implementing tasks at a professional or equivalent level, originality in tackling and solving problems, and decision-making in complex and unpredictable contexts or situations.

You should be able to demonstrate mastery of the leading edge subject-related concepts and ideas as they relate to real world situations and/or particular contexts. How do they work in practice? You will deploy models, methods, techniques, and/or theories, in those contexts or circumstances, to assess current situations, perhaps to formulate plans or plausible, justifiable recommendations to solve problems, or to propose new models, or to create artefacts, which may be innovative and creative, thereby demonstrating your understanding of how the boundaries of knowledge are advanced through research and/or application.

5. Transferable Skills for Life and Professional Practice

Your work must provide evidence of the qualities and transferable skills necessary for postgraduate-level employment in circumstances requiring sound judgement, personal responsibility and initiative in complex and unpredictable professional environments.

Consider how the management of the development was maintained and the extent to which you feel this innovation process represents best practice.

This includes demonstrating: the independent learning ability for continuing professional development to advance existing skills and acquire new competences of a professional nature that will enable you to assume significant responsibility within organisations; that you can initiate and complete tasks, projects and procedures, whether individually and/or collaboratively, to a professional level; that you can use appropriate media to effectively communicate information, arguments and analysis in a variety of forms for a variety of audiences; fluency of expression; clarity and effectiveness in presentation and organisation. Work should be coherent and well-structured in presentation and organisation.

This will be assessed in the way that you present your work. Your report should be presented in a professional manner, be easy to read with each of the above tasks clearly addressed. Use of appropriate spreadsheets, numerical analysis software, graphical interpretation of results, etc.

STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	**Marks available**	**Marks awarded**
1. Engagement with Literature Skills		
	25	
2. Knowledge and Understanding Skills		
	15	
3. Cognitive and Intellectual Skills		
	20	
4. Practical Application Skills		
	20	
5. Transferable Skills for Life and Professional Practice		
	20	

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	**Late Submission Penalties (tick if appropriate)**		**%**
	Up to 1 week late (50% Max)		
	Over 1 week late (0%)		

GENERIC ASSESSMENT CRITERIA

Level 7
In accordance with the Framework for Higher Education Qualifications, at the end of Level 7 students should be able to demonstrate: a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their academic discipline or area of professional practice; a comprehensive understanding of techniques applicable to their own research or advanced scholarship; originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline; conceptual understanding that enables the student to evaluate critically current research and advanced scholarship in the discipline to evaluate methodologies and develop critiques of them and, where appropriate, to propose new hypotheses. They will be able to deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences. They will demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level to continue to advance their knowledge and understanding, and to develop new skills to a high level. They the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility; decision-making in complex and unpredictable situations/professional environments; and the independent learning ability required for continuing professional development.

Level 7	FAIL	FAIL	MARGINAL FAIL	SATISFACTORY (Pass)	GOOD to VERY GOOD (Merit)	EXCELLENT (Distinction)	EXCEPTIONAL (Distinction)
Category	**0-29%**	**30-44%**	**45-49%**	**50-59%**	**60-69%**	**70-84%**	**85-100%**
Engagement with literature (including current research, referencing, academic conventions and academic honesty)	Little or no evidence of reading and/or reliance on inappropriate sources. Views and findings mostly unsupported and non-authoritative. Referencing conventions used incoherently or largely absent.	Poor engagement with essential reading. No evidence of wider reading. Reliance on inappropriate sources, and/or indiscriminate use of sources. Heavily reliant on information gained through class contact. Inconsistent and weak use of referencing.	Engagement with a very limited range of relevant and credible sources. Some omissions and minor errors. Referencing conventions evident though not always applied accurately or consistently.	Engagement with an appropriate range of research-informed literature, including sources retrieved independently. Some over-reliance on texts. Referencing may show minor inaccuracies or inconsistencies.	Engagement with a wide range of research-informed literature, including sources retrieved independently. Selection of relevant and credible sources. Very good use of referencing, with no/very few inaccuracies or inconsistencies.	Engagement with an extensive range of relevant and credible literature, informed by the latest research. Consistently accurate application of referencing.	Exceptional engagement with an extensive range of relevant and credible literature, informed by the latest research. High-level referencing skills consistently and professionally applied.
Knowledge and	Major gaps in knowledge and understanding of	Gaps in knowledge, with only superficial	Limited knowledge and systematic	Knowledge is accurate and reasonably	Knowledge has a well-defined focus, which is	Excellent mastery of a complex and	Exceptional mastery of a complex and

Level 7	FAIL	FAIL	MARGINAL FAIL	SATISFACTORY (Pass)	GOOD to VERY GOOD (Merit)	EXCELLENT (Distinction)	EXCEPTIONAL (Distinction)
Category	**0-29%**	**30-44%**	**45-49%**	**50-59%**	**60-69%**	**70-84%**	**85-100%**
understanding (A systematic, conceptual understanding of knowledge, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of the discipline; a comprehensive understanding of techniques applicable to their own research)	the subject matter is not systematic. Substantial inaccuracies. No awareness of current problems, insights or the latest research and/or advanced scholarship within the discipline.	systematic understanding. Some significant inaccuracies and/or irrelevant material. No critical awareness of current problems, insights, or latest research within the discipline.	understanding of the concepts and principles within the subject area, which to some marginal extent, is informed by current research and scholarship. Some critical awareness of current problems and/or new insights, but often under-developed.	detailed. A systematic understanding of the field of study informed by, to some extent, current research and scholarship, A critical awareness of current problems and/or new insights though this may be under-developed occasionally.	reasonably extensive, coherent and detailed, with a critical awareness of current problems and/or new insights. Exhibits good understanding of the breadth and depth of contemporary and established views, and the work is, at least in part, well-informed by current research and scholarship.	specialised area of knowledge. A systematic, excellent understanding of the concepts of the subject informed by current research and scholarship. Highly critical awareness of current problems and/or new insights. A critical, awareness of how the boundaries of knowledge are advanced through research.	specialised area of knowledge. An exceptionally critical awareness of current problems and/or new insights. An outstanding understanding of the concepts of the subject, well-informed by current research and scholarship. A critical, sophisticated and nuanced awareness of how the boundaries of knowledge are advanced through research.
Cognitive and intellectual skills (Critical evaluation of current research and methodologies and develop critiques of them and, where appropriate, to propose new hypotheses; make sound judgements in the	Wholly or almost wholly descriptive work. Little or no evaluation or critique or attempt at a systematic approach. Failure to develop arguments, leading to illogical or invalid judgements.	Largely descriptive work, with superficial use of critical evaluation of research and methodologies. Absent or weak development of hypotheses and judgements. Information accepted uncritically, uses generalised	Limited attempt at critical evaluation/ critique of current research and methodologies, tending towards description. Limited attempt to propose new hypotheses. Can deal with complex issues but not	Some critical evaluation/ critique of current research and methodologies, though slightly underdeveloped in places, Proposes adequate but limited new hypotheses, where relevant. Can deal with	Sound critical evaluation/ critique of current research and methodologies, Proposes new hypotheses, where appropriate. Can deal with complex issues systematically and with some creativity. Ability	Excellent critical evaluation/ critique of current research and methodologies, Proposes innovative hypotheses, where appropriate. Can synthesise complex issues systematically and creatively.	Exceptional critical evaluation/ critique of current research and methodologies, Proposes innovative hypotheses, where appropriate. Exemplary systematic and creative

Level 7	FAIL	FAIL	MARGINAL FAIL	SATISFACTORY (Pass)	GOOD to VERY GOOD (Merit)	EXCELLENT (Distinction)	EXCEPTIONAL (Distinction)
Category	**0-29%**	**30-44%**	**45-49%**	**50-59%**	**60-69%**	**70-84%**	**85-100%**
absence of complete data.)	Unsubstantiated generalisations, made without use of credible evidence.	statements made with scant evidence and unsubstantiated opinions. Ideas sometimes illogical and contradictory.	systematically or creatively. Some evidence to support emerging judgements but these may be underdeveloped or with a little inconsistency / mis-interpretation. May assert rather than argue a case.	complex issues but not fully systematically or creatively. Ability to make judgements based on data (that may be incomplete) but with some tendency to assert/state opinion rather than argue on the basis of reason and evidence.	to make sound judgements based on data (that may be incomplete)	Ability to investigate contradictory or incomplete information and make strong, persuasive, arguments and sophisticated judgements.	synthesis of complex issues. Ability to investigate contradictory or incomplete information and make strong, persuasive, arguments and sophisticated, nuanced, judgements. Potential for journal publication or doctoral research.
Practical skills (Originality / creativity in the application of knowledge, tools and techniques and in tackling and solving problems in complex and unpredictable professional situations; practical use of established techniques of research and enquiry to create and interpret knowledge in the discipline.)	Limited or no use of methods, materials, tools and/or techniques. Little or no appreciation of the context of the application. Limited understanding of the application of theory to practice or making appropriate links between the two. Very weak problem-solving skills in complex and	Rudimentary application of methods, materials, tools and/or techniques but without consideration and competence. Flawed appreciation of the context of the application. Weak understanding of the application of theory to practice, with only occasional evidence of making	An awareness and mostly appropriate application of well-established methods, materials, tools and/or techniques, with occasional errors. Basic appreciation of the context of the application. Theoretical knowledge and understanding applied in practice, but not always making	An appropriate application of standard methods, materials, tools and/or techniques. Clear appreciation of the context of the application. Mainly consistent, accurate and logical application of theory to practice, making appropriate links between the two. Can identify problems and	A very good application of a range of methods, materials, tools and/or techniques. Very good consideration of the context of the application, with perceptive insights. Can identify problems and propose appropriate solutions in complex and unpredictable contexts.	An advanced application of knowledge, methods, materials, tools and/or techniques. The context of the application is well considered, and insightful. Can identify complex problems and propose excellent solutions. An excellent grasp of techniques applicable to own research or	Exceptional application skills in complex, unpredictable, contexts, drawing skilfully on the latest research within the discipline. Can identify complex problems and propose sophisticated, original solutions. An outstanding application of techniques applicable to own research or

Level 7	FAIL	FAIL	MARGINAL FAIL	SATISFACTORY (Pass)	GOOD to VERY GOOD (Merit)	EXCELLENT (Distinction)	EXCEPTIONAL (Distinction)
Category	**0-29%**	**30-44%**	**45-49%**	**50-59%**	**60-69%**	**70-84%**	**85-100%**
	unpredictable contexts.	appropriate links between the two. Weak problem-solving skills in complex and unpredictable contexts.	logical links between the two. Can identify problems and propose basic solutions without fully appreciating the complexity of unpredictable contexts.	propose mostly appropriate solutions in complex and unpredictable contexts, with elements of originality.	Evidence of originality and creativity.	advanced scholarship. Shows originality in application of knowledge and techniques, and of how established techniques of enquiry create and interpret knowledge in the discipline.	advanced scholarship. Shows originality in application of knowledge and techniques, and of how established techniques of enquiry create and interpret knowledge in the discipline with assimilation and development of cutting edge processes and techniques.
Transferable skills for life and professional practice (Exercise of self-direction, autonomy and personal responsibility; plan and implement tasks at a professional level; independent learning; use appropriate media to communicate effectively and professionally to a variety of audiences; fluency of expression; systematic	Communication medium is inappropriate or misapplied. Work is poorly structured, disorganised and/or confusingly expressed. Very weak use of language and/or very inappropriate style. Little or no evidence of autonomy (or collaboration, where relevant) in the completion of tasks. Little or no evidence of	Communication medium is poorly designed and/or not suitable for the audience. Work is poorly presented in a disjointed manner. It is loosely, and at times incoherently, structured, with information and ideas often poorly expressed. Weak use of language and/or inappropriate style. Weak independent	Can communicate in a suitable medium but with some room for improvement. Mostly ordered presentation and structure in which relevant ideas / concepts are reasonably expressed. Work may lack coherence in places. Can work as part of a team, but with limited involvement in group activities.	Can communicate effectively in a suitable format, but may have minor errors. Mostly coherent, organised work, in a suitable structure and is for the most part clearly expressed. Can work effectively independently and/or as part of a team, with clear contribution to group activities. Demonstrates the skills	Can communicate well, confidently and consistently in a suitable format. Work is coherent, fluent, well-structured and organised. Can work very well autonomously and/or as part of a team, with a good contribution to group activities. Demonstrates comprehensive professional, postgraduate	Can communicate professionally confidently and consistently in a suitable format. Work is coherent, very fluent and is presented professionally. Can work autonomously with initiative. Where relevant can work professionally within a team, showing leadership skills as appropriate, managing	Can communicate with an exceptionally high level of professionalism. Work is remarkably coherent, very fluent and is presented professionally. Can work outstandingly well and professionally within a team, showing advanced leadership skills. Demonstrates exemplary

Level 7	FAIL	FAIL	MARGINAL FAIL	SATISFACTORY (Pass)	GOOD to VERY GOOD (Merit)	EXCELLENT (Distinction)	EXCEPTIONAL (Distinction)
Category	**0-29%**	**30-44%**	**45-49%**	**50-59%**	**60-69%**	**70-84%**	**85-100%**
approach; clarity and effectiveness in presentation and organisation.)	the skills required in professional, postgraduate employment.	initiative (or collaboration, if relevant). Limited evidence of the skills required in professional, postgraduate employment.	Demonstrates some but not all of the basic skills required in professional, postgraduate employment, with some areas of minor weakness.	required in professional, postgraduate employment, with some areas of strength and some of minor weakness.	employment skills.	conflict and meeting obligations. Demonstrates excellent professional, postgraduate employment skills and a strong appetite for further development.	professional, postgraduate employment skills and a strong appetite for further development.

THIS DOCUMENT IS ALSO AVAILABLE IN WELSH