Student Project Handbook

How to Approach Your Project

School of Computing & Technology

Preface

Amongst the most difficult aspects for a degree is undertaking a project and submitting a report for assessment. The requirements and expectations for these are some of the most difficult parts to describe within the documentation of degree level Programmes, not least because students undertake individual projects which are tailored to their individual study programmes, work experience and opportunities, and academic interests.

The guide is intended primarily to support students studying degrees at Asia Pacific University College of Technology and Innovation.

The advice presented in this guide is helpful to students undertaking a degree qualification, which requires a project as part of their Programme. Such students should consult the relevant programme specific aspects to ensure that they have the necessary focus for their work.

Award specific information can be found on the website.

Above all remember:

If in doubt, consult your supervisor

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PART I

All about Projects

1 Introduction

So far so good - you are now at the stage in your Programme to think about the start of your project. You may well be asking yourself at this stage, "Why are projects so important in a Degree Programme?" and more importantly to you, "What will I get out of completing a project?"

1.1 "Why are projects so important in a Degree Programme?"

Throughout the programme you have been developing an understanding of the relationship of the taught modules to one another. You have also been synthesising aspects of information technology, management and related topics in the context of your specific Programme requirements.

The module tutors have encouraged you to apply this knowledge to practical situations. You should by now be able to analyse various scenarios, draw conclusions and formulate solutions, so demonstrating that you can apply your recently acquired knowledge and theory to real situations.

The project gives you the opportunity to extend and unify your understanding of a selected topic and so demonstrate that you can indeed apply knowledge and techniques learnt on the Programme at a sophisticated level.

1.2 "What will I get out of completing the project?"

So far we have organised your learning for you - though it might not have seemed so at the time because you have been required to do a considerable amount of work on your own: Syllabuses however, have been laid down, text books specified, practical sessions designed, and examinations set.

Now you have to take the responsibility for managing your own learning and for producing a project report. Of Programme there will be people around you to help - including your supervisors and fellow students. You will be expected to initiate discussion and ask for help. You must manage yourself so it is no use sitting around waiting for somebody to tell you what to do next, or worse, complaining that nobody is telling you what to do.
So in answer to the question "What will I get out of completing a project?", you will of Programme become more specialist in the area you chose to investigate and be able

to apply experiential learning, problem solving, analytical and decision making skills to real situations. More importantly, you will learn to manage yourself, to accept responsibility for determining what you are required to do, as well as carrying it out.

You will have implemented some aspect of your Personal Development Plan. You will also be able to demonstrate a significant report or artifact to a potential employer so as to sell yourself effectively for the job you want.

Thus in conclusion the project is the vehicle that will promote your capacity to take initiatives and develop independence of thought in a supportive framework - qualities universally identified as being essential to industrial and commercial needs.

2 The Nature of the Beast. What is a project?

In this section we discuss the nature of the project experience you will be undergoing.

It is important to put the project in perspective - you are not studying for a Masters degree or a Ph.D. - yet!! There are considerable differences in the skills and training associated with your project report and a Masters or PhD thesis. Consider the production of your report as a training exercise in research work. You are undertaking an investigation, though not on the scale required for a Masters degree or a Ph.D.

By the time you have successfully completed your project you will be able to show that you

- have produced something that your peers will be interested in.
- have demonstrated a command of what is happening in your chosen area.
- have discovered where you can contribute to your chosen area of study.
- will have shown knowledge and understanding of the techniques that are currently being used in your area and have considered their limitations.
- can communicate your results effectively.

This list indicates that in order to successfully complete your project you have to acquire a wide range of skills. You have to be able to carve out a topic of study, to master the techniques required and put them to appropriate use, and communicate your findings.

Your supervisor will, of Programme, support you throughout your project. One thing is clear. You cannot achieve a good pass mark if you do not know what the standards are. There will be opportunity through both formal and informal discussions with your supervisor and by reading other projects to discover the standards you ought to aim for.

Probably the most visible and long lasting product of your project will be the report. A copy of this is usually kept so that other students can reference it, possibly long after you have graduated. It is very important, therefore, that this is up to standard as far as both the presentation and content are concerned. We can give advice on the presentation in this guide. The appropriateness of content will partly come from discussions with your supervisor.

2.1 What types of research projects are there?

Your project can take several forms. For example, it could be: -

- a written survey and analysis of a particular problem area with the deliverable being a business plan which you will have to evaluate or may be a set of guidelines for software development in a new area etc

or

- 'practical problem-solving' - for example involving the development of a software package, or formulating a solution to a real world business problem e.g. a marketing strategy.

These may seem to be vastly different, but they have very important similarities. Your project is really a scientific experiment, although you will very rarely think of it as such. The most important outcome from this experiment is what you have learned (and reported in your report). There may be other products from the work, for example, a software package.

The **process** by which you carry out the 'experiment' is also exceedingly important, and should be reported within the report. This gives confidence to any reader that you have approached the problem in a systematic way, and that they may have some confidence in your findings.

2.2 Are there any restrictions on the area of the project?

Your project must fit the characteristics of your particular programme. The following provides examples of the topic areas that may be suitable for projects on different Programmes.

If in doubt, discuss your ideas with tutors/Project Manager before you undertake the Research Methods module

Computing & IT

The project should address an appropriately challenging contemporary problem in Computing. Being a general computing award, the project could be concerned with an area of application of Computing in providing solutions to the type of problems arising in industry. There will be a balance of emphasis between the investigation, analysis, design and implementation phases of developing a computer based system.

Computing & IT with specialism in Information Systems Security

In addition to fulfilling the general requirements of the primary award, the project for the specialism is also expected to specifically demonstrate a focus in the area of Information Systems Security.

Computing & IT with specialism in Intelligent Systems

In addition to fulfilling the general requirements of the primary award, the project for the specialism is also expected to specifically demonstrate a focus in the area of Intelligent Systems, i.e. systems that apply concepts of 'Artificial Intelligence' e.g. expert systems, neural networks, natural language processing etc.

Computing & IT with specialism in Network Computing

In addition to fulfilling the general requirements of the primary award, the project for the specialism is also expected to specifically demonstrate a focus in designing and developing suitable solutions to problems arising in industry the area of Network Computing.

Computing & IT with specialism in Forensic Computing

In addition to fulfilling the general requirements of the primary award, the project for the specialism is also expected to specifically demonstrate a focus in the area of Forensic Computing. The projects will specifically demonstrate the use of appropriate techniques and skills to detect computer crime and the methods of gathering evidence and presenting it in the prosecution of such crimes successfully.

Software Engineering

The project should address an appropriately challenging contemporary problem in Software Engineering. The project could be concerned with the use and application of the proper methods, tools and techniques of Software Engineering in providing solutions to the type of problems arising in industry. There will be a balance of emphasis between the investigation, analysis, design and implementation phases of developing a computer based system, with particular emphasis on proper and professional software engineering practices and standards.

Network Computing

The project should address an appropriately challenging solution in Network computing. The project could be concerned with the use and application of the proper tools, methods and techniques of computer networking in providing solutions to the type of problems arising in the industry.

Internet Technology

The project should address an appropriately challenging problem in applying Internet Technology. The project could be concerned with the use and application of the appropriate technologies in providing solutions to the type of problems arising in the industry. The emphasis is on the development of a technical and well-documented solution using Internet, Intranet or Extranet technologies.

Enterprise Computing

The project should address an appropriately challenging problem in applying Enterprise Computing. The project could be concerned with the use and application of the appropriate tools, skills and techniques related to computing in providing solutions to the type of problems arising in industry especially in large enterprises.

Computer Graphics, Imaging & Virtuality

The project should address an appropriately challenging problem in the area of Graphics, Imaging & Virtuality. The project could be concerned with the use and application of the appropriate tools, skills and techniques related to Graphics, Imaging & Virtuality in providing innovative solutions to typical applications problems arising in industry.

Interactive Entertainment

The project should address an appropriately challenging contemporary problem in providing solutions to the Interactive Entertainment industry. The project could be concerned with the use of certain authoring tools and design principles to create innovative and interesting Interactive Entertainment applications.

Interactive Entertainment with specialism in Animation

In addition to fulfilling the general requirements of the primary award, the project for the specialism is also expected to specifically demonstrate a focus in the area of Computer Animation. The emphasis is on creating computer-generated animation for its application in various sectors encompassing marketing, educational, the entertainment industry etc.

Computer Games Design Development

The project should address an appropriately challenging problem in the area of Computer Games Design. The emphasis is to design and to implement a computer game engaging appropriate design principles and programming skills.

Interactive Multimedia

The project should address an appropriately challenging problem in the area of Interactive Multimedia. The emphasis is to design and create an Interactive Multimedia system using a rigorous approach and a recognised development methodology.

Web Media

The project should address an appropriately challenging problem in the area of Web Multimedia. The emphasis is to create a web-based interactive multimedia application using various development tools and methods.

Technology

The project should address an appropriately challenging problem in applying various types of Technology. The project could be concerned with the use and application of the appropriate technologies in providing solutions to the type of problems arising in industry by utilising suitable technologies especially for control and automation .

Technology with specialism in Computer Design Technology

In addition to fulfilling the general requirements of the primary award, the project for the specialism is also expected to specifically demonstrate a focus in the area of Computer Design.

E-Commerce Technology

The project should address an appropriately challenging problem in applying Internet and Communication Technologies in promoting business applications. The project could be concerned with the use and application of the appropriate technologies in providing solutions arising in industry that can be suitably addressed with online applications using the Internet as a primary delivery platform.

Communications Technology

The project should address an appropriately challenging problem in applying Communications Technology. The project could be concerned with the use and application of

appropriate technologies in providing solutions to the type of problems arising in industry that can be addressed with innovative application of Communications Technologies.

Communications Technology with specialism in Mobile Communications Technology

In addition to fulfilling the general requirements of the primary award, the project for the specialism is also expected to specifically demonstrate a focus in the area of Mobile Communications Technology including the relevant architectures, standards and protocols that can be utilized to solve industry problems.

Business Management

The Student Project will be developed according to research investigations conducted within the context of business management (i.e. Contemporary management strategies, new business models, decision making issues, etc.) The Student should address business issue(s) prevalent in a business/company selected.

Business Management with specialism in E-Business

The Student Project will be developed according to research investigations conducted within the context of E-Business (i.e. Electronic procurement, Internet Payment systems, Internet business models, etc.) The Student should mainly address E-Business issue(s) prevalent in a business/company selected.

Business Management with specialism in E-Procurement

The Student Project will be developed according to research investigations conducted within the context of E-Procurement (i.e., Supply Chain issues, E-Business strategy, Value Chains, etc.) The Student should mainly address E-Procurement issue(s) prevalent in a business/company selected.

International Business Management

The Student Project will be developed according to research investigations conducted within the context of International Business Management (i.e., Global Human Resource Management, Corporate Finance, Marketing, Management issues etc.) The Student should mainly address International Business Management issue(s) prevalent in a business/company selected. The project would have a global business application, instead of a local one.

Human Resource Management

The Student Project will be developed according to research investigations done within the context of Human Resource Management (i.e., People Management, Change management,

International HRM issues, etc.) The Student should mainly address Human Resource Management issue(s) prevalent in a business/company selected.

Marketing Management

The Student Project will be developed according to research investigations done within the context of Marketing Management (i.e., International marketing issues, Marketing communications, Retail Marketing, etc.) The Student should mainly address Marketing Management issue(s) prevalent in a business/company selected.

Accounting and Finance

The Student Project will be developed according to research investigations done within the context of Accounting and Finance (i.e. Financial reporting, Managerial Accounting, Auditing issues, etc.) The Student should mainly address Accounting and Finance issue(s) prevalent in a business/company selected.

Tourism Management

The Student Project will be developed according to the research investigations done within the context of Tourism Management (i.e. International and local tourism marketing issues, conference and exhibition management issues, etc.) The Student should mainly address Tourism Management issue(s) prevalent in a business/company selected.

Services Management

The Student Project will be developed according to the research investigations done within the context of Services Management (i.e. Strategic Entrepreneurship, Entertainment Industry, Customer Relationship development, etc.) The Student should mainly address Service Management issue(s) prevalent in a business/company selected. Business selected should be Services orientated.

Media Marketing

The project requires skills in multimedia and marketing, including advertising planning & copywriting. The project could be concerned with the use of planning, decision making, global & entrepreneurship aspects of marketing including the entertainment industry. The project will require a well written report in the area of Marketing communications, promoting certain products together with a multimedia system. The greater emphasis is on the report.

Media Informatics

The project emphasises using multimedia system as a promotional and communications tools. The project will specifically demonstrate the use of appropriate authoring tools to create multimedia system together with a well written report. The greater emphasis will be on the multimedia system.

Technopreneurship

The Student Project will be developed according to the research investigations done within the context of Technopreneurship (i.e., Innovation, New Product Development, Information Systems, etc.) The Student should be innovative and incorporate Technopreneurship idea(s) to address business/company problems.

2.3 Common 'dangers'

Before discussion the project report and the process it is useful to be aware of some of the more common 'dangers' you will face in working on your project:-

- initially you may tend to be over ambitious in the scope of your project - and your tutors will recommend that you limit your study.
- you may focus too much on the product that you are producing, rather than the knowledge gained. This again can be very time-consuming.
- you may discover lots of interesting material when researching in the library, but its relevance to the project might be very tenuous. Try not to be diverted from the main 'experiment'.
- you may be descriptive in your approach when the need is to analyse and explain your topic. Be rigorous.
- you may lose contact with your supervisor - you must be prepared to take the initiative and arrange to consult regularly with your supervisor.
- you may underestimate the importance of managing your own time and materials effectively.

3 The Finished Product - The Project Report

The project may be substantial and may take a variety of forms but the report should not exceed 10,000 words. DO NOT try to produce the biggest report possible. Quality is more important than quantity.

There are standards expected for the presentation of a report. You need not worry about these at the start of the project. Full details are supplied separately in appendix A.

Typically the format of the report should contain the following sections:-

Abstract
- outlines the problem
- gives summary of the results
- no more than ½ page in length

Contents
- including page numbers

Introduction
- specifies the problem (the what/who)
- gives the context/environment
- states briefly the approach you will be using (how)

Main body of the report, presented as a number of chapters covering
- detailed background description to work/problem
- what you propose to do to solve the problem
- rationale behind the design
- the design of your research plan
- evaluation of methods etc used
- evaluation of the significance of your findings
- a detailed discussion of the implementation of your solution
- results and evaluation / critical appraisal of your solution

Conclusions
- summarise results / findings
- proposal for further investigation/research/development
- discussion of synthesis and evaluation of existing knowledge, practices, techniques, artifacts or models

References/Bibliography (See Appendix B for the standard notation required)

Appendices if appropriate

3.1 Writing Technique

The biggest problem with writing any document, particularly one of a technical nature, is that we tend to forget **who** we are writing for. This is a very simple trap to fall into, but is the one that is likely to cause us the most trouble, particularly if the examiners of a project report cannot understand what is being reported.

If you were writing a User Manual, you would probably write it as a reference document, which is well indexed with each section self-contained. You could therefore move about it in a somewhat haphazard fashion, gaining (coherent) information as you went.

If you were writing an essay, you would probably adopt a more flowing and fluent style of writing, so that the 'story' was told to the reader who started at the beginning and progressed sequentially through.

If you were writing a novel, you might deliberately try to give false clues or defer important information until later.

Is there an appropriate style for a Project Report?

In practice, the answer probably lies between the first two. Do not fall into the trap of writing solely for an examiner!!!!! That presupposes some prior knowledge of who the examiner might be, and a bad guess could lead to disastrous consequences.

There is never likely to be only one reader. In fact, one could go further by saying that many readers may look at different parts of a report, and hope to extract information at very different levels. Whilst the 'golden rule' might be always to ***write for the reader***, you must take care that you appreciate who the reader might be.

Remember your project report will remain long after you leave the Institution so should not leave the reader with any questions as to what you did and why you did it.

For business projects a detailed analysis of business techniques need to be incorporated, with a discussion of the reasons for your choices of solution as well as critically analysing your recommendations and measuring them against business needs.

For technology/IT projects you will need to address technology issues and describe interesting program code etc. The reader needs to understand what was developed and how it was developed which needs to include a discussion of programming code.

It is therefore **absolutely essential** that you write for the right reader, at least if you want to be successful. If in doubt ask your supervisor or Project Manager for advise.

3.2 Writing Style

Whilst you are taught to write (in whatever language) from a very early age, the one aspect that is rarely covered within any curriculum is the ability to communicate. This is fundamental. You may be trained to be competent in many other disciplines, such as technology or business, yet communication skills are often by-passed in the education process.

We do not attempt to redress this omission within this guide. Intuitively you may know what makes for good communication - you understand what is being said / written. But what are the key factors? Are there good techniques that ensure the communication takes place?

There is a significant contrast in styles between writing, say a detective novel and a technical report. In the former, the 'art' is to conceal the important information (such as who did the murder) until as long as possible, while in the latter, the ability to get information over as quickly, painlessly and completely as possible without confusion is paramount.

This naturally leads to different writing techniques. Although there are no hard and fast rules as to how this must be done, the following hints have been seen to work effectively.

The overriding principle is that communication is about conveying **messages**. You will therefore find that everything you write should be related to the messages. This leads to a number of different types of sentence, namely:

- the message itself,
- qualification of the message i.e. further explanation,
- an identification of which topics (messages) are coming up,
- a summary of what (messages) have been presented.

There are naturally different levels of message, but the same principles can be applied as the refinement process takes place (in the same way as program development may involve top-down refinement).

Try to present the message early, and then qualify it. If you find that a sentence (paragraph, section, chapter etc.) has two or more messages, split it into smaller units.

Identifying the topics that will be coming serves several purposes: it acts as a pseudo-index; it allows for a mental check on completeness; it also ensures more 'comfortable' reading, as there are no surprises awaiting the reader.

Summarising the material adds reinforcement in that the reader knows they have recognised all the points that have been covered.

If you map these very general 'rules' onto different parts of a thesis, you find:

Introduction

Message	What the project is about.
Qualifiers	Why it is a relevant topic Appropriateness to different application areas. What techniques it draws upon.
Topics Coming	The forthcoming chapters. Why they are relevant (at a high level).
Summary	What you hope to discover / identify. (A hint at the conclusions)

Within each Chapter

Message	What the chapter is about.
Qualifiers	Why the chapter is in the report What its contribution is to the project 'message'.
Topics Coming	An indication of the sections within the chapter, with the rationale (briefly) for why you are including them. The individual sections would then follow.
Summary	Reinforcement of what has been presented within the chapter (i.e. its **message**).

Within each Section

Message	What the section is about.
Qualifiers	The relevance of the section. How it contributes to the message of the chapter.
Topics Coming	An identification of sub-sections etc.

Summary Reiteration, if necessary.

Within each Paragraph

etc.

It can be seen that this same format can be applied recursively throughout the entire report. While this may appear rather monotonous, it is a technique that works very effectively, both in conveying information and helping the writers with a mental block!!!

PART II

Doing the Project

4 Getting Started

The project is a vital part of your degree and as such needs to be treated as such. A lack of management on your side can mean the difference between passing or failing the project.

The following outlines the process for developing your project idea and how this affects the project.

4.1 Stage 1 - The Research Methods Module

You will attend the Research Methods module in level 2 of your programme. In this module you will be taught about different research methodologies. It provides the tools and techniques for completion of the final year investigation and project. The topics covered are: ideas generation, reviewing and evaluation of literature, research approaches and strategies, hypothesis setting and testing, access and ethical issues, sampling techniques, secondary data sources, observational and interview research, questionnaire design and development, analyzing quantitative and qualitative data and discussion of findings.

You will be coached in the area of topic selection, how to work with your supervisor and how to produce a project proposal

4.1.1 Choosing your topic

You have considerable freedom in choosing a topic to research so long as it builds on aspect(s) of the Programme you have studied and meets the overall aims of your programme of study. Make sure it is a topic which you can see yourself studying for some time - many researchers have come to grief simply because they lose interest in the area they are investigating.

Talk to your tutors about your idea(s) in order to establish its potential. You may have several topics that you feel are worthwhile - consider both work-based/related projects as well as topics that are of personal interest to you.

After discussing your ideas you will have a general idea for the project topic. This should be brought to the Research Methods module.

4.1.2 Working with your supervisors

You will be allocated a supervisor for the duration of your project. It is vital that you communicate with your supervisor regularly, as their experience and expertise will provide you with insights into the project process and ensure that you remain focussed on your project area.

Good rapport and communication between you and your supervisor are the most important elements of supervision. Remember you will need to communicate regularly with your supervisor both in preparing your proposal, and then in the planning and implementation of the project.

4.1.3 Writing your proposal

You will have an opportunity to apply some of the skills and techniques attained in the Research Methods module by developing a research proposal. It will be the basis of the final year project. In terms of content, the proposal must reflect the award being studied and should contain the following:

- Introduction - to the area of study and a discussion of how the area of study relates to your study programme
- Objectives – of the project. What problem is it trying to solve?
- Methodology - a project development plan
- Proposed contents – to include areas of further investigation required to complete the project.
- Initial literature review – of some of the areas outlined in the proposed contents
- Deliverables – what you intend to produce at the end of the project and how you will measure its success
- Timescales – to identify the general timings of the steps identified in the methodology
- References – to work of relevance to your project

The purpose of this proposal is to ensure that you have a viable topic and adequate resources to complete your research successfully. See Appendix C for further details of the format of your proposal.

Your proposal will be examined to ensure that the topic is suitable for your award and that ethical issues have been addressed.

4.2 Stage 2 - The Research Investigations Module

At level 3 you will undertake the Research Investigations module that will help you to expand your knowledge of the project area you identified at level 2 in your proposal so that you can analyse and critically assess the literature in your project area. You must also confirm, or give reasons to change, the research and objectives for the Level 3 Project.

You will produce a detailed review of the literature in your chosen area so that you can formulate research questions in your project area and justify a research design. You will also be expected to evaluate primary and/or secondary evidence on a research question. This will result in your literature review.

4.2.1 The Literature Review

Your proposal will have identified the various stages of your research. These stages will have 'tasks' associated with them, completion of which should be measurable.

Your first task is to embark on the preliminary research for your project area. This research will be used to produce your literature review which will identify the key research/developments etc that have taken place in your field of study and how this impacts on your proposed outcomes.

4.2.2 Organising yourself and others

To maximise your chances of completing your project to your declared deadline you should draw up a timetable that contains a number of target deadlines for you to aim at. Of Programme it is unrealistic to expect that you will go through these stages in a straightforward way. You may lag behind and have to revise your schedule - that does not matter, as you are still moving positively towards completion of the project. Typically students gradually realise that progress is slower than they had expected. Having a series of deadlines to work towards will urge you to get on and do whatever you are supposed to do. In fact it is not at all unusual for people to leave things until the very last minute because they find it difficult to work well if they are not under pressure - a strategy not to be recommended though! You will also have the sense of achievement as you complete the set task and decide to 'treat' yourself at this stage. At all cost you must simulate a motivating device. But above all - be realistic.

5 The Project

Having completed your literature review you will then be ready to use appropriate research techniques and methodologies to achieve the aims and objectives specified in your proposal, and further justified in your literature review.

5.1 Organising Yourself and Others

At the mid-point of your project you will be required to present your progress to your second advisor. The purpose of this meeting is to check on your progress and give you some advice to assist in your project progress as well as writing/presentation practice.

5.2 How to Keep Going When the Going Gets Tough

It is important that you meet your supervisor regularly as they will be able to motivate you when things look tough.

5.2.1 Psychological Stages you might go through.

We have already discussed the intellectual challenge of this project but neglected so far to emphasise the fact that there is also a considerable emotional component to the experience.

As you start your project you will be full of enthusiasm but as time progresses this might wane. You will experience a variety of emotions.

- Isolation. Up to now you have had regular contact with fellow class mates and will have been able to work in small groups for some project work. You will now be expected to tackle a project on your own..
- Boredom - it is not unusual to feel 'fed up', confused and completely 'stuck' about halfway through your project. This 'getting nowhere' syndrome is common - the monitoring and repetitiveness of concentrating on the same thing for an extended period of time are quite common. Both seem to be an integral part of learning how to be systematic about research and disciplining yourself to continue.
- Frustration - You will frequently feel that nothing is 'going' your way. The book you want will take several weeks to arrive - your supervisor will not always be available for consultation at the exact moment you experience difficulties - the pressures of work increase. Or new avenues will open up as you progress with your project that are really interesting and may seem

worth pursuing – you need to be very careful at this time as, to complete your project you must be focussed and not be sidetracked.

5.2.2 Support Groups

How can you best prepare yourself for this emotional drain? Several support groups are readily available if you get organised:-

Firstly - by the time you start your project you will have made many friends from studying on the Programme - you will have an established network - use it! Make a list of email addresses / telephone numbers - circulate it - and arrange to meet regularly to discuss project related problems, offer mutual criticism and encouragement, and/or have a good 'moan' if you feel like it.

Use your tutors (both your supervisor and other members of staff). You should have established a good working relationship with your supervisor - ask for advice/guidance - but remember it is **your** project - do not expect your tutors to do the work for you!!

Thirdly - your family and friends have supported you throughout your studies on the Programme. During your project you might consider using them in a more active role. For example if someone in your family has time, ask them to proof-read your literature review/report.

PART III

The Appendices

Appendix A
The Project Report

Submission of the Project Report

The following regulations apply to the submission of a project for your degree.

The report shall be presented in English.

A report must be submitted for examination in a bound form which is sufficiently secure to ensure that pages cannot be added or moved.

There shall be an abstract of approximately 300 words bound into the report, which shall provide a synopsis of the project stating the nature and scope of the work undertaken. The abstract shall have the name of the author, the programme for which the project report is submitted, the year of submission and the title of the project as a heading.

The report should include a table of contents, with page numbers.

The text of the report should normally not exceed 10,000 words (excluding ancillary data):

A copy of the report will be retained by the Institution and will normally be available openly for reference purposes. The copyright of the project report remains the intellectual property of the Institution.

Where it has been agreed that the confidential nature of the candidate's work is such to preclude published material being made freely available, the material shall be retained by the Institution on restricted access and, for a time not exceeding 2 years, shall only be made available to those who were directly involved in the project.

An application for confidentiality shall normally only be approved in order to enable a patent application to be lodged or to protect commercially or politically sensitive material. A project report shall not be restricted in this way in order to protect research leads. While the normal maximum period of confidentiality is two years, in exceptional circumstances a longer period may be approved on application to the Institution. Where a shorter period would be adequate, confidentiality shall not be automatically granted for two years.

A project report, which does not conform to the requirements for presentation, will normally not be considered for assessment.

MINIMUM REQUIREMENT FOR DOCUMENTATION - INVESTIGATION REPORT

CHAPTER 1: INTRODUCTION TO THE STUDY

Background to the Research
Review of Past Research Work and Identification of Gaps
Research Problem / Research Question
Aims and objectives
Justification for the Research
Methodology
Conclusion

CHAPTER 2: LITERATURE REVIEW

Introduction
Topics covered, including the year, the industry, the country and/or region, and the
Domain Research

- Findings by others
- Limitations and problems of the research by others,
- Gaps in the topic
- Contribution to the body of knowledge that is relevant to the research problem,
- How it compares and contrasts with the positions developed by other researchers.
- Similar Systems

Technical Research

- Language
- Database
- Architecture
- Methodology

Conclusions

CHAPTER 3: RESEARCH METHODOLOGY

Introduction
Research Approach
Primary Research

- Focus Group Study
- In-depth Interviews
- Survey
- Questionnaire Instruments
- Questionnaire Layout
- Pilot Testing
- Reliability
- Response Format

Data Analysis Methods used

- Qualitative Analysis, Quantitative Analysis

Ethical Considerations
Conclusions

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MINIMUM REQUIREMENT FOR FINAL DOCUMENTATION

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Topics covered, including the year, the industry, the country and/or region, and the

Domain Research

- Findings by others
- Limitations and problems of the research by others,
- Gaps in the topic
- Contribution to the body of knowledge that is relevant to the research problem,
- How it compares and contrasts with the positions developed by other researchers.
- Similar Systems

Technical Research

- Language
- Database
- Architecture
- Methodology

Conclusions

CHAPTER 3: RESEARCH METHODOLOGY

Introduction
Research Approach

Primary Research

- Focus Group Study,
- In-depth Interviews
- Survey
- Questionnaire Instruments
- Questionnaire Layout
- Pilot Testing
- Reliability
- Response Format

Data Analysis Methods used

- Qualitative Analysis, Quantitative Analysis

Ethical Considerations
Conclusions

CHAPTER 4: PRESENTATION AND ANALYSIS OF DATA
Introduction
Survey Findings
- Characteristics of the Respondents
- Questionnaire
- Findings

Analysis using Statistical Packages
Analysis from Qualitative Results (Interviews, Focus Group)
Conclusion

CHAPTER 5: SYSTEM IMPLEMENTATION & TESTING
Introduction to the System
How the analysis was used to create the system
How the Literature Review was used to support the system
Important codes for implementation
Testing of the system
Implication in reference to the PSF (if any)

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS
Introduction
Conclusions relating to the Research Objectives
Recommendations and Suggestions
Limitations
Self-Review (How the project was managed)
Further research
Conclusion

APPENDICES
Compulsory
Appendix A : Log Sheets
Appendix B : Gantt Chart
Appendix C : Project Specification Form
Appendix D : Learning Contract
Appendix E : Ethics Form

Dependent on Project
Appendix F : Focus Group Interview Questions (optional)
Appendix G : Survey Questionnaire (optional)
Appendix H : In-depth Interview Questions (optional)
Appendix I : Descriptive Statistics on Survey (optional)
Appendix J : Interview Transcript (optional)
Appendix K : Testing Report from users

Presentation of the Report

The following requirements shall be adhered to in the format of the submitted project report. Where a candidate desires fuller guidance, reference may be made to the British Standards Institution specification BS 4821 (1990). Where the Institute's regulations differ from BS 4821 in points of detail, a candidate may follow either.

a reports shall be in A4 format;

b copies of the report shall be presented in a permanent and legible form normally laser printed. The size of character used in the main text, including displayed matter and notes, shall not be less than 2.0mm for capitals and 1.5mm for x-height (that is, the height of lower-case x) (12 point Times New Roman advised);

c the report shall be printed on the recto side of the page only; the paper shall be white and within the range 70 g/m^2 to 100 g/m^2;

d the margin at the left-hand binding edge of the page shall not be less than 40 mm; other margins shall not be less than 15 mm;

e one-and-a-half spacing shall be used in the typescript except for indented quotations or footnotes where single spacing may be used;

f pages shall be numbered consecutively through the main text including photographs and/or diagrams included as whole pages;

g the title page shall give the following information:

1 the full title of the project;

2 the full name of the author;

3 that the degree is awarded by the Institution;

4 the programme for which the degree is submitted in partial fulfilment of its requirements;

[Specimen project report title page]

THE DEVELOPMENT OF A REALLY INTERESTING SYSTEM TO SOLVE A PROBLEM

JOHN SMITH

A project submitted in partial fulfilment of the requirements of
Asia Pacific University College of Technology and Innovation
for the degree of
BSc (Hons) in Computing and IT

December 2004

Appendix B
Citation of References

How to Cite References

When you are writing your assignment or essay it is essential that you provide detailed and precise information on all the sources you have consulted (references). You may have used books, journal articles, newspapers, TV programmes, videos, the internet, government papers, statistics, etc.
Every time you use quotations, or draw upon facts and arguments you must acknowledge your sources. This protects you from accusations of plagiarism (stealing other people's ideas and statements and passing them off as your own).

Citing your references also enables the reader to identify and trace the works that you used, and shows the authority on which you base your statements, demonstrates how well acquainted you are with the subject, and is a starting point for anyone else wanting to find out about the subject.

For further information on citing your references see the Research Methods module at Level 2 of your programme

The Harvard System

A number of methods exist for citing references. The Institution uses the Harvard (Author/Date) System as set out by the British Standards Institution specification BS 5605 (1990)

Appendix C
Project Proposal

(No more than four pages)

DRAFT PROJECT PROPOSAL

Student Name:

Student No:

Email Address:

Programme Name:

Title of project:

Please record which modules your topic is related to:

---

1. Introduction

Assume the reader has very little knowledge of the subject.

Introduce the topic, the sector of business/industry concerned and how the project relates to it. Define the context of the problem and identify the research required to solve it.

2. Problem Statement

Identify past and current work in the subject area.

Outline the key references to other people's work, indicate for the most pertinent of these how your proposal relates to the ideas they contain.

3. Project Aims and Objectives

Identify the AIM(s) of the project, i.e. what the overall achievement is intended to be, in terms of both academic and commercial/industrial advances.

Identify the particular intellectual difficulties posed by the proposal, the problems to be addressed, and explain how these might be solved.

Clearly list individual measurable OBJECTIVES which can be related to the workplan and deliverables.

Aims and objectives are subject to approval from supervisor and students are expected to revise them if deemed inappropriate for a Level 3 project.

4. Deliverables

Provide a clear list of the outputs from the project.

Appendix D
Marking Criteria

Asia Pacific University College of Technology and Innovation

Investigations Module Assessment Form

Student's Name:	**Student's ID No**:	**Intake:**
.....	.....	.....

Award Title:

Title of Investigation:

.....

Supervisor:

Second Marker:

Moderator:

Notes

- This Investigations Assessment Form is intended to give a quantitative means of judging a student's performance for the investigation stage of research, through the development of a written report based on their chosen topic.
- The Supervisor and Second Marker are required to mark on the scale for each category their assessment of the student's performance under each category, with additional comments to qualify their judgement. At the end the marks should be totalled up.
- The Supervisor and Second Marker should include comments to justify the assessment given.
- If a Supervisor or Second Marker is unable to assess any category, this should be noted in the "Comment" area.
- The form must be completed together by the Supervisor and Second Marker with both agreeing the final mark awarded. Note that only ONE form should be completed for a student in order that both Supervisor and Second Marker assessment information is kept together.

1 Problem Identification and Specification of Research Objectives

The student's ability to specify a topic of study which can be developed into a final year project.

Little relevance Very relevant

0	1 2	3 4	5 6	7 8	9 10
No research has been carried out. The work does not consider any external sources of information.	Weak introduction to the topic, failing to discuss the issues associated with the dissertation. No evidence of research activities having taken place.	Provides a limited discussion of the key issues associated with the dissertation with little indication of research.	Satisfactory introduction to the topic area but lacking in detail in most areas. Some evidence of research activities taking place.	Good introduction to the topic covering most areas of interest in detail. Research is evident but some areas a bit sparsely discussed. Generally relevant to the objectives.	Research has been carried out in a highly appropriate manner. The evidence provides no doubt that the activities have been completed and is relevant to the objectives.

Comments:

---

2 Relevance of Research Undertaken

The student's performance in identifying the research relevant to the topic area

Little relevance Very relevant

0	1 2	3 4	5 6	7 8	9 10
No research has been carried out. The work does not consider any external sources of information.	Weak introduction to the topic, failing to discuss the issues associated with the dissertation. No evidence of research activities having taken place.	Provides a limited discussion of the key issues associated with the dissertation with little indication of research.	Satisfactory introduction to the topic area but lacking in detail in most areas. Some evidence of research activities taking place.	Good introduction to the topic covering most areas of interest in detail. Research is evident but some areas a bit sparsely discussed. Generally relevant to the objectives.	Research has been carried out in a highly appropriate manner. The evidence provides no doubt that the activities have been completed and is relevant to the objectives.

Comments:

---

3 Critical appraisal of the subject matter

Very little A lot

0	1 2	3 4	5 6	7 8	9 10
No appraisal included.	Only a weak appraisal included no real critical detail provided, very superficial in nature.	A basic appraisal is provided but is fairly weak omitting to address several important appraisal issues.	Suitable appraisal given which addresses most areas but slightly lacking in depth.	A good appraisal given covering nearly all appraisal aspects and to a good level of depth.	A very high quality appraisal provided covering all issues to an extremely high standard.

Comments:

---

4 Development of the student's research skills

Very poor Very good

0	1 2	3 4	5 6	7 8	9 10
No new or existing skills developed.	Only trivial skills learned or developed. Learning in the main is negligible. Not much in the way of totally new learning undertaken.	Some skills developed either existing or totally new. The skills learned are basic and restricted with further development possible.	The student has developed some sound existing and new skills, but has room to have applied several more skills.	The student has developed and applied some sound existing and new skills, but has room to have applied themselves to several more skills.	The student has shown a high level of development related to the development of existing and new skills. In relation to the project substantive and appropriate learning of skills is shown.

Comments:

---

5 The written report

Very poor Very good

0	1 2	3 4	5 6	7 8	9 10
The written document does not adequately represent a literature review.	The report is very poor in presentation with its construction, lacking most elements of a literature review.	The report is weak in its presentation. Sections required will be present but not addressed at a suitable level.	A reasonable report has been produced with all required sections. In areas there are minor deficiencies such as layout.	The report has been produced of a good structure containing suitable sections and is well written and well laid out.	A very good report has been produced showing no deficiencies in organisation or of writing style. The work is of a professional standard.

Comment:

---

6 Referencing

Very poor Very good

0	1 2	3 4	5 6	7 8	9 10
No referencing included	Weak referencing. Small number of citations not showing suitable spread of literature being reviewed.	The references provide a limited discussion of the literature available and may be out-dated.	Satisfactory referencing has been carried out, some literature out of date or of little relevance. Referencing style needs tidying up.	Good coverage of the topic with the citations provided, being mostly relevant and up to date and correctly referenced.	Very good use of references with a highly appropriate coverage which is relevant, up to date and properly referenced.

Comment:

---

7 Comments and Recommendations

(Please supply any relevant comments, particularly if a fail or distinction recommendation is made).

Supervisor comments
Second Marker Comments
Further comments on the agreed recommendation/moderation of overall grade (if applicable)

Agreed Recommendation

Between Supervisor and second marker, calculate the student's final scaled percentage
Note that the Supervisor and Second Marker need only complete one Assessment Form

To calculate the student's final mark for the literature review the mark for each section needs to be entered in the appropriate box below then multiplied by its weighting. These should be totalled up to give the overall scaled percentage.

	Mark	**Weight**	**Scaled Mark**
1. Problem identification and objectives		**x2**	
2. Relevance of research undertaken		**x2**	
3. Critical appraisal		**x2**	
4. Discussion of research for project		**x2**	
5. The written report		**x1**	
6. Referencing		**x1**	
Final Scaled Percentage			

Signature of Supervisor: _____ Date: _____

Signature of Second Marker: _____ Date: _____

Signature of Moderator (if applicable): _____ Date: _____

Asia Pacific University College of Technology and Innovation

Project Assessment Form

Student's Name:	**Student's ID No**:	**Intake:**
.....	.....	.....

Award Title:

Title of Investigation:

Supervisor:

Second Marker:

Moderator:

Components

This Form comprises two components, equally weighted. For each component there are 6 criteria to be assessed, each weighted as shown in the summary table at the end of the Form

Notes

- This Project Assessment Form is intended to give a quantitative means of judging a student's performance for the initial stage of their research, through the development of a written literature review based on their chosen topic.
- The Supervisor and Second Marker are required to mark on the scale for each category their assessment of the student's performance under each category, with additional comments to qualify their judgement. At the end the marks should be totalled up.
- The Supervisor and Second Marker should include comments to justify the assessment given.
- If a Supervisor or Second Marker is unable to assess any category, this should be noted in the "Comment" area.
- The form must be completed together by the Supervisor and Second Marker with both agreeing the final mark awarded. Note that only ONE form should be completed for a student in order that both Supervisor and Second Marker assessment information is kept together.

Component 1: Project Management, Development and Documentation

1.1 The student's performance in managing the project (i.e. meeting deadlines, coping with events, using resources efficiently) and working in an independent, organized manner without excessive supervision and/or guidance.

Rare meetings or thread lost between meetings, or almost entirely staff driven, or no bona fide attempt to keep to plan	Found it difficult to keep to plan, or failing to keep records, or needing lots of help, or missed many meetings	Regular meetings, appropriate time scales, organized, some help to keep project on track	Proactive in regular meetings, clear about next stage, took advice. Updated plan.	Outstanding management of project, all other assessed work taken into account in planning, fully organized	100% completely professional approach
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

1.2 The student's performance in analysing the problem situation and applying/documenting the chosen analysis and/or investigation techniques and the quality, appropriateness and accuracy of the student's model, definition and/or specification and/or report.

No/very minimal analysis	Analysis does not use proper technique and or model/specification/report is not created	Analysis uses suitable technique. Minimal model/specification/report is created	Analysis is accurate and good use of the analysis technique is made. It is well presented and leads to a sound well documented model/specification/report	Excellent incisive analysis leading to well defined model/specification/report of high quality that is fully accurate. Analysis technique is followed or well adapted with documented adaptations	Completely professional analysis and model/specification/report
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

1.3 The quality of the student's description of the problem area/domain and the feasibility of the design as a way of overcoming the existing problems and in selecting and justifying the choice of appropriate analysis and design method(s) and reporting as shown in the Supervisory meetings and in the Project Report.

No analysis or no design or minimal analysis and design	Analysis and design present but investigation does not drive analysis or analysis does not drive design or methods used badly	Limited analysis and design methods chosen but investigation A&D have logical flow through	Appropriate analysis and design methods chosen documented, Clear connection between investigation, analysis and design/report	Effective analysis and design used well throughout with clear line of thinking through the documentation	Excellent methods description with sound choice made adapted methods to suit project fully justified and connected thinking. Publishable without amendment
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

1.4 The quality, appropriateness and accuracy of the student's design which is produced from the model, definition and/or specification, as represented in the Project Report.

No design or nominal only	Poor design, insufficient consideration of detail ,top level only or design not related to specification or models	Limited design, or design not well related to specification or model	Appropriate design, clear and accurate, satisfactory for the implementation of the project	Excellent design covering all aspects of the specification, fully appropriate to the project, showing clear thinking	Publishable design without amendment
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

1.5 The extent to which the project report conforms to the stated criteria for an academic report in terms of length, style, structure and form and the perceived clarity, 'readability' and effectiveness of the project report as a technical and/or business communication document (e.g., standard of English, economy of text, use of diagrams and appendices).

Major sections missing, or no referencing, or report is unreadable as an English Report	Report is unbalanced or unclear, or it is difficult to follow ideas, or referencing is poor or inconsistent ,or lack of illustrative content	Acceptable report structure, some referencing, no missing parts, clarity of language.	Effective report using academic and technical language, fully structured, accurately referenced	Outstanding, comprehensive and clear report, very high standard of presentation aimed at the right level throughout. Fully referenced	Report of publishable standard without amendment
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

1.6 The quality of the documentation which relates to the implementation solution (e.g. user manual or system documentation, design, artefact, experiment, business plan or marketing plan) and to the testing and evaluation process (e.g. the testing plan and results)

No or minimal implementation documentation or testing evaluation documentation	Either implementation documentation or testing evaluation documentation is significantly deficient	Sufficient implementation documentation and testing evaluation documentation	Extensive and well organized implementation and testing evaluation documentation	A quality piece of work giving full coverage of the solution and full program of testing/evaluation undertaken	Publishable implementation documentation with sufficient testing evaluation to ensure that the product fulfils its specification and implemented criteria
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

Component 2: Implementation and Critical Evaluation

2.1 The student's performance in selecting and utilizing the choice of appropriate implementation or problem - solving method(s) and the level of organization or engineering in the student's approach to transforming the model, experiment or specification into an effective implementation, as shown in the Supervisory meetings and in the Project Report.

No implementation or insufficient implementation to show competent use of any problem solving methods	Weak implementation with little structured solution development	Appropriately structured implementation which follows from design	Very well engineered / developed solution, with evidence that student has used proven methods in transforming design into implementation	Excellent use of appropriate principles and models, both higher and lower levels in implementation from design cycle	Fully professional choice and use of model
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

2.2 The student's ability to exploit, manipulate and apply the features of the chosen implementation medium (i.e. language and/or package report or other) as shown in the Supervisory meetings and in the Project Report.

No/minimal implementation	Implementation medium not fully exploited making the implementation insufficient and inefficient	Language/ package facilities / opportunities / techniques exploited to suggest a functional implementation	Appropriate use of all opportunities to make implementation more effective	Documented use of complex features of the implementation medium which show quantitatively and qualitatively the improvements gained	Marketable, without amendment, implementation of the highest possible standard using a wide range of approaches
0 1	2 3	4 5	6 7	8 9	10

Comment: ……..……

……..

2.3 The technical quality of the implementation as shown in the presentation/demonstration and/or in the Project Report.

No implementation or very minimal implementation	Poor technical quality with little use of development skills or knowledge in evidence	Project with some limitations, mostly technically sound	Good use of range of tools experiments, plans, methods and models to give a project with only minor limitations	Wide use of models and processes to ensure a fully operating technically outstanding project/experiments/plans	Technically a fully professional quality project with no limitations
0 1	2 3	4 5	6 7	8 9	10

Comment: ……

……..

2.4 The functional quality of the implementation as shown in the presentation/demonstration and in the Project Report

No implementation or very minimal implementation	Deliverables not effective in most parts to specification /objectives	Deliverables essentially effective but with some severe limitations	Deliverables effective with some minor limitations	Deliverables fulfill specification exactly with no limitations or failures of any type	Deliverables are of highest quality throughout completely fulfilling complex specification /objectives
0 1	2 3	4 5	6 7	8 9	10

Comment: ……

……..

2.5 The suitability and level of testing used to ensure the final deliverable meets user requirements and specifications/objectives

No or minimal testing carried out.	Level of testing is very basic and tests only limited functionality of the system	The testing provides some degree of consideration to the user requirements	The deliverable has been tested well, with user involvement and a clear plan used to consider all aspects of the deliverable	The deliverable has been tested to a professional level with only minor deficiencies.	The deliverable has been fully tested in all areas of user requirements etc. There are no deficiencies identified in the testing process.
0 1	2 3	4 5	6 7	8 9	10

Comment: …….

……

2.6 The extent to which the deliverable has been critically appraised, with discussion of alternative approaches that could have been followed etc. The discussion of future enhancements to the work carried out and what, in hindsight, could have been achieved.

No critical review or a very weak comment provided.	An appraisal has been provided but lacks any depth in the highlighted areas.	A limited appraisal which covers most areas in some level of detail but lacks any real discussion.	The critical appraisal provides an insight into the project and highlights alternative approaches which could have enhanced the final deliverable.	The critical appraisal provides a detailed discussion of what has been learnt and how the project could have been performed differently to enhance the deliverable produced..	The deliverable has been reviewed fully and all aspects have been considered in a professional manner.
0 1	2 3	4 5	6 7	8 9	10

Comment:……..……

……

Comments and Recommendations
(Please supply any relevant comments, particularly if a fail or distinction recommendation is made)

Supervisor comments
Second Marker comments
Further comments on the agreed recommendation/moderation of overall grade (if applicable)
Agreed Recommendation Between Supervisor and second marker, calculate the student's final scaled percentage Note that the Supervisor and Second Marker need only complete one Assessment Form

To calculate the student's final mark for the project the mark for each section in both components needs to be entered in the appropriate box below then multiplied by the weightings. These should be totalled to give the overall scaled %.

Component 1		**Mark**	**Weight**	**Scaled Mark**
Section 1.1	Managing the project		x1	
Section 1.2	Analysing the problem situation		x1	
Section 1.3	Feasibility of proposed solution to solve problem		x2	
Section 1.4	Quality of solution designed		x2	
Section 1.5	Quality of academic report		x2	
Section 1.6	Quality of technical report		x2	
Final Scaled Percentage				

Component 2		**Mark**	**Weight**	**Scaled Mark**
Section 2.1	Suitability of problem solving method		x1	
Section 2.2	Exploitation of implementation medium		x1	
Section 2.3	Technical quality of implementation		x2	
Section 2.4	Functional quality of implementation		x2	
Section 2.5	Testing/Review of the final deliverable		x2	
Section 2.6	Critical appraisal of the final deliverable		x2	
Final Scaled Percentage				

Final Mark (Sum of Final scaled percentage for Component 1 plus component 2)	**%**

Signature of Supervisor: _____ Date: _____

Signature of Second Marker: _____ Date: _____

Signature of Moderator (if applicable): _____ Date: _____