

**Wales Institute of Science and Art**/Athrofa Gwyddoniaeth a Chelf Cymru

**School of Applied Computing/**Ysgol Cyfrifiadura Gymhwysol

**MAJOR PROJECT/MASTER’S PROJECT HANDBOOK**

**for**

|  |
| --- |
| M.Sc. Applied Computing  M.Sc. Computer Networks and Cyber Security  M.Sc. Software Engineering (Web Development) |

**2019/20**

|  |  |
| --- | --- |
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# TABLE OF CONTENTS

[TABLE OF CONTENTS 3](#_Toc43040044)

[1 Introduction 5](#_Toc43040045)

[2 The Master’s Project Module 7](#_Toc43040046)

[3 The Major Project Module 9](#_Toc43040047)

[4 Learning and Teaching Strategy 12](#_Toc43040048)

[5 Assessment 13](#_Toc43040049)

[6 Project Selection 15](#_Toc43040050)

[7 Submission Deadlines 15](#_Toc43040051)

[8 The Student Supervisor Relationship 17](#_Toc43040052)

[8.1 Supervisors 17](#_Toc43040053)

[8.2 Responsibilities of supervisors 17](#_Toc43040054)

[8.3 Responsibilities of students 18](#_Toc43040055)

[8.4 The Logbook 18](#_Toc43040056)

[8.5 Attendance 18](#_Toc43040057)

[9 Final Report (70%) 19](#_Toc43040058)

[9.1 Assessment Marking Criteria 19](#_Toc43040059)

[9.2 Suggested Structure for Report 20](#_Toc43040060)

[1. TITLE PAGE 20](#_Toc43040061)

[2. DECLARATION FORM and FORM OF CONSENT (see Appendix 1) 21](#_Toc43040062)

[3. ABSTRACT (1 page or around 300 words) 21](#_Toc43040063)

[4. CONTENTS PAGE 22](#_Toc43040064)

[5. CHAPTER 1: INTRODUCTION 22](#_Toc43040065)

[6. CHAPTER 2: LITERATURE REVIEW 23](#_Toc43040066)

[7. CHAPTER 3: RESEARCH AND/OR DEVELOPMENT METHODOLOGY 23](#_Toc43040067)

[8. CHAPTER 4: DESIGN AND IMPLEMENTATION (for Experiment- and Development-based Projects) 25](#_Toc43040068)

[9. CHAPTER 4: ANALYSIS (for Survey- and Review-based Projects) 27](#_Toc43040069)

[10. CHAPTER 5: RESULTS AND DISCUSSION / EVALUATION 28](#_Toc43040070)

[11. CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS 28](#_Toc43040071)

[12. CHAPTER 7: REFLECTION 29](#_Toc43040072)

[13. REFERENCES 29](#_Toc43040073)

[14. BIBLIOGRAPHY (Optional) 29](#_Toc43040074)

[15. APPENDICES 29](#_Toc43040075)

[9.3 Presentation Style of Report 29](#_Toc43040076)

[9.3.1 Structure of Work 30](#_Toc43040077)

[9.3.2 Visual Presentation 30](#_Toc43040078)

[9.3.3 Referencing Conventions 30](#_Toc43040079)

[9.3.4 Word Limit 33](#_Toc43040080)

[9.3.5 Style Requirements 33](#_Toc43040081)

[9.4 Other General Points to Note 34](#_Toc43040082)

[9.4.1 Assessment 34](#_Toc43040083)

[9.4.2 Plagiarism 35](#_Toc43040084)

[9.4.3 Handing in your Project Report 37](#_Toc43040085)

[10 Final Viva (20%) 38](#_Toc43040086)

[10.1 Assessment Marking Criteria 38](#_Toc43040087)

[12 Electronic Journals and Databases 39](#_Toc43040088)

[13 Problems, Grievances, and Appeals 40](#_Toc43040089)

[Appendix 1: Declaration and Form of Consent 41](#_Toc43040090)

[Appendix 2: Ethics Approval Form 42](#_Toc43040091)

[Appendix 3: Plagiarism 46](#_Toc43040092)

[Appendix 4: Project Assessment Guidelines 47](#_Toc43040093)

# Introduction

The Level 7 Major Project or Master’s Project is a major piece of work undertaken by the student on an individual basis. The project is a 60 credit module on MSc programmes.

The stated aim of the project is:

“ ... to allow the student to advance their knowledge and understanding by undertaking and managing a significant project of their own choice, related to the major themes of their MSc programme”

The project provides a vehicle to further develop innovative and creative skills and to integrate the range of technical, business, research and other transferable skills promoted in Part 1. As such it aims to prepare you for life-long learning, fostering an investigative and analytical approach to solving complex problems in an innovative manner.

You have already selected a project topic through the Research Methods module in Part I and produced a project proposal. Project supervisors will be confirmed before the start of the summer break.

The timetabled hours allow briefing sessions with the project coordinator and formal tutorials with individual Project Supervisors. The sessions with the project coordinator will occur as the need arises, for example, during the project selection phase. The meetings with project supervisors will occur on a regular (normally weekly) basis. It is expected that students will supplement the timetable allocation with a considerable period of unsupervised work. The project is looked upon as a final large scale integrating study.

Attendance of project briefings with the project coordinator and tutorials with individual supervisors is seen as being very important and student attendance as well as progress will be monitored carefully.

**The completed project will normally include a deliverable** (software system, evaluation report, framework document, implementation plan etc.). The project documentation should normally be around **15,000 words** in length.

**Note:** Students are expected to undertake a Project involving them doing something within a relevant subject discipline as opposed to producing a dissertation.

Useful tips:

* The project can be a deceptive experience. As the submission deadline is so far away when you start, there is a danger of wasting time in the early stages of the process.
* Start writing as soon as possible. There are dangers in putting off this task.
* Always allow as much time as possible for the final stages. Final amendments, organising, testing, debugging, word processing and doing a thorough job on the proof reading all take longer than you imagine. Something will always go wrong to thwart your schedule!

There are two versions of the Level 7 project module:

* ACFA7003 Master’s Project – this version is taken by the students on the following postgraduate degree programmes:
  + MSc Applied Computing
  + MSc Computer Networks and Cyber Security
* ACCA7006 Major Project – this version is for the students on:
  + MSc Software Engineering (Web Development)

Please refer to the appropriate module in the following sections.

# The Master’s Project Module

|  |  |
| --- | --- |
| MODULE CODE: | ACFA7003 |
| TITLE: | Master’s Project |
| DATED: | 11/04/2019 |
|  |  |
| LEVEL: | 7 |
| CREDITS: | 60 |
|  |  |
| JACS CODE: | I200 |

**AIM(S)**

* To allow the student to advance their knowledge and understanding by undertaking and managing a significant project of their own choice, related to the major themes of their MSc programme.

**LEARNING OUTCOMES**

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

* To critically identify and develop an advanced research topic
* Review appropriate literature by contextualising and integrating the study into the continuing development of knowledge and understanding of chosen research topic
* Critically formulate a series of research objectives and devise strategies to support these.
* Demonstrate and display advanced critical, analytic and creative thinking
* Demonstrate advanced professional skills to present information both orally and in a written form

**INDICATIVE CONTENT**

The Master’s Project is an essential part of the degree; it is the culmination of the Master’s programme. As such, it has been designed and conceived as an integral part of the programme. Preparation for the Master’s Project begins early in the programme and students acquire analytical and other research skills throughout part 1. This underpins and enhances the student’s ability to undertake research.

* Formulation and rationale for suitable post-graduate research objectives
* Application of an appropriate methodology for the investigation.
* Collation and communication - recording and organising information, analysis of results, communicating the results, referencing, plagiarism.
* Critical review of appropriate literature within a conceptual/theoretical framework.
* Determination of research results.
* Critical appraisal of the results/solutions of the investigation.
* Project planning - project time scale control
* Oral/visual critique and presentation of the results of the investigation.
* Written and verbal critique of the research
* Intellectual property - copyright, trademarks, patents.
* Social and cultural context, and ethical issues
* Intellectual property - copyright, trademarks, patents.
* Social and cultural context, and ethical issues

ASSESSMENT

**Assessment Component 1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Written exam** |  | | **Coursework** |  | **Practical** | | |
| **Mode of assessment** | | | **Volume** | | | | **Weighting** |
| Master’s Project | | | 15,000 words equivalent  Students will produce a research portfolio of work appropriate to the nature of their project. This will vary slightly according to the nature of the project undertaken. Portfolio elements may include a selection of the following, to be agreed with the external examiner:   * Written Report (all students) * Exhibition Board (all students) * Presentation slides * Hardware and/or software implementation | | | | 80% |

**Assessment Component 2**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Written exam** |  | | **Coursework** |  | **Practical** | | |
| **Mode of assessment** | | | **Volume** | | | | **Weighting** |
| Viva voce | | | 15 mins (before questions) | | | | 20% |

Assessment Summary

|  |  |
| --- | --- |
| **Activity type** | **Percentage** |
| Written exam | 0% |
| Coursework | 80% |
| Practical | 20% |
| **TOTAL** | **100%** |

# The Major Project Module

|  |  |
| --- | --- |
| MODULE CODE: | ACCA7006 |
| TITLE: | Major Project |
| DATED: | 16/08/2018 |
|  |  |
| LEVEL: | 7 |
| CREDITS: | 60 |
|  |  |
| JACS CODE: | I200 |

**AIM(S)**

* To deepen students' critical faculties and powers of expression providing them with practice in the organisational skills necessary to pursue a research project using appropriate research methodologies to investigate and analyse relevant issues.
* To allow the student to advance their knowledge and understanding by undertaking and managing a significant project of their own choice, related to the major themes of their MSc programme.

**LEARNING OUTCOMES**

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

* Critically evaluate technical and other literature and to apply the evidence gathered to solve a complex problem
* Demonstrate a professional and systematic approach to the solution of complex problems
* Demonstrate high level professional skills to present information both orally and in a written form
* Demonstrate the ability, as an individual, to plan a complex project and to produce a convincing artefact as a solution to the problem
* Understand and effectively apply the legal ethical and professional issues in the development of a project

**INDICATIVE CONTENT**

* Research principles and approaches
* Research methodologies - historical, descriptive, correlational, comparative, experimental.
* Developing a proposal - research statement, research outline and design research schedule
* Collation and communication - recording and organising information, analysis of results, communicating the results, referencing, plagiarism.
* Project planning - project time scale control
* Establishing and justifying metrics, analysis of test results, including software benchmarking,
* Contingency planning
* Development of documentation for academic projects
* Presentation of work produced to an academic audience
* Subject-specific content as required
* Intellectual property - copyright, trademarks, patents.
* Social and cultural context, and ethical issues

ASSESSMENT

**Assessment Component 1**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Written exam** |  | | **Coursework** |  | **Practical** | | |
| **Mode of assessment** | | | **Volume** | | | | **Weighting** |
| Project Proposal | | | 2,000 words | | | | 10% |

**Assessment Component 2**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Written exam** |  |  | | **Coursework** |  | **Practical** | |
| **Mode of assessment** | | | | **Volume** | | | | **Weighting** | |
| Final Report | | | | 11,000 words max | | | | 70% | |

**Assessment Component 3**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Written exam** |  | | **Coursework** |  | **Practical** | | |
| **Mode of assessment** | | | **Volume** | | | | **Weighting** |
| Final Presentation | | | 20 minutes | | | | 20% |

# The Major Project module deviates from the standard assessment recommendations given in the quality handbook due to its special role within the programme. This module has been developed and perfected over many years and it was found that without several levels of intermediate assessment then students tended to fall behind on this module.

Assessment Summary

|  |  |
| --- | --- |
| **Activity type** | **Percentage** |
| Written exam | 0% |
| Coursework | 80% |
| Practical | 20% |
| **TOTAL** | **100%** |

# Learning and Teaching Strategy

Students will commence their Part 2 studies with a project proposal already formulated. This proposal will normally be generated as an outcome of the Part 1 module *Research Methods and Data Analysis* for those taking the Master’s Project (ACFA7003) module and as the outcome for Assessment Component 1 for those taking the Major Project (ACCA7006) module.

A suggested project list from academic staff will be made available to the students as a guide. Students may also submit their own titles. All titles must be approved by an appropriate member(s) of the programme team and the Project Co-ordinator to check on their level and validity is appropriate for Masters’ level. The project selected must be appropriate to the themes of the student’s programme of study, and meet ethical and sustainability guidelines.

Based upon the proposal, each student will be allocated an individual supervisor. A nominal assessment type will be agreed at the start of the project:

* Survey-based
* Review-based
* Analysis-based
* Experiment-based
* Development-based

It is expected that Computer Networks and Cyber Security students would undertake Experiment-based or Development-based projects while Applied Computing, and Software Engineering students would undertake Development-based projects. However, it is not impossible that a student from a more technical stream could conduct a Review-based project, and vice-versa. Situations such as these will be carefully considered by staff to ensure that the project selected is appropriate to the themes and outcomes of the student’s programme and the students advised accordingly.

Should the focus of a student’s project significantly change as the project progresses, it may be possible to change the assessment type on the advice of the supervisor and the Project Co-ordinator.

The student will be required to work on their own initiative in the production of the project and all associated documentation. The supervisor will provide support and guidance to the student. Additionally, a project handbook will be issued.

The student will be supervised, as far as is reasonable practicable, by a member of staff with knowledge of the project’s topic area. In accordance with UWTSD regulations, the project will be double-marked by two members of staff other than the supervisor.

See below for assessment.

The proposed arrangements for marking projects are:

* The supervisor will normally act as the first marker for all projects for which they have supervisory responsibility.
* A different member of the academic staff of the university will second-mark projects.
* The two markers will mark the projects independently and without consultation with the other and then agree a consensus mark. If the two markers cannot agree, or the two marks are not within 10 points of each other, a third marker will be assigned. All markers will need to agree a final mark.
* All projects to be made available to External Examiner(s).
* All third-marked projects will be seen by the External Examiner(s).
* At the *viva voce,* the student’s supervisor will be present plus at least one other member of Academic Staff. The *viva voce* consists of a fifteen to twenty minute presentation by the student about their project, followed by a question and answer session where the student will have the opportunity to demonstrate their knowledge of the work undertaken, and to identify issues that may have been omitted from the final submitted document. Non-attendance at a *viva voce* will normally result in failure of the module.

The study time for the module is divided as follows:

|  |  |  |
| --- | --- | --- |
| **Activity type** | **Hours** | **Percentage** |
| Scheduled learning | 15 | 2.5% |
| Independent learning | 585 | 97.5% |
| Placement learning | 0 | 0% |
| **TOTAL** | **600** | **100%** |

# **Assessment**

# *Description of each assessment component and its weighting, together with an example for new forms of assessment:*

Assessment Component – Final Report

Master’s Project Assessment Component 1 – Coursework – Final Report - 70%

Major Project Assessment Component 2 – Coursework – Final Report – 70%

**For details, see Final Report (70%) Chapter below**

Assessment Component – Final Viva/Presentation

Master’s Project Assessment Component 2 – Practical - Final Viva/Demo – 20%

Major Project Assessment Component 3 – Practical - Final Presentation – 20%

**For details, see Final Viva (20%) Chapter below**

# **BIBLIOGRAPHY**

# **Essential**

Avison, D. and Fitzgerald, G. (2007),Information Systems Development: Methodologies, Techniques and Tools, 4th Edition McGraw-Hill: Maidenhead.

Kranzler, J.H. (2010) Statistics for the Terrified, 5th Edition ,Pearson, NY.

McCormac, C and Davis, J. (2012) Research Project Success: The Essential Guide for Science and Engineering Students, Royal Society of Chemistry

O’Leary, Z. (2013) Doing Your Research Project, 2nd Edition, SAGE Publications Ltd

Saunders, M., Lewis, P. and Thornhill, A. (2012), Research Methods for Business Students, 6th Edition FT/Prentice Hall: Harlow

# **Background**

Baase, S. (2012), A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet: International Edition, 4th Edition Pearson: NY

Collis, J. and Hussey, R. (2009) Business Research: a Practical Guide for Undergraduate and Postgraduate Students, 3rd Edition, Palgrave Macmillan: Basingstoke

Cottrell, S.(2011) *Critical Thinking Skills: Developing Effective Analysis and Argument,* Palgrave Study Guides, 2nd Edition, Palgrave Macmillan: Basingstoke

Davies, M. B. (2007) *Doing a Successful Research Project,* Palgrave Macmillan: Basingstoke

Dawson, C.W. (2009) Projects in Computing and Information Systems: a Student’s Guide, 2nd Edition Addison Wesley: Harlow

Denscombe, M (2010) *The Good Research Guide,* OU Press: Buckingham

Few, S (2012) Show Me the Numbers: Designing Tables and Graphs to Enlighten, Analytics Press: Burlingame.

Quinn, M. J. (2010) Ethics for the Information Age: International Edition, 4th Edition, Pearson: NY

Yin, R K, (2008) *Case Study Research: Design and Methods*, 4th Edition, Sage: Beverly Hills.

# **Journals**

# Appropriate journals from the core subject areas.

# **Websites**

Appropriate websites from the core subject areas.

# Project Selection

When selecting a project the following factors should be considered:

* The task must be achievable within the timescale.
* The project should be in a subject area appropriate to the Masters' title. Thus it is inappropriate, for example, for Computer Networks students to engage in a project demanding detailed technical expertise in real-time programming.
* Industry-based projects are encouraged (for ATM funded students this is a requirement).
* Proposed projects must have an acceptable technical/analytical content.
* Projects should preferably include some element of design.
* The resource requirements of the project should be reasonable and adequate access to these resources should be available. For example, projects involving eyetracking or video streaming will be approved only if the Project Coordinator is satisfied that the required equipment will be available for use.
* A deliverable in the form of software, a systems design, methodological framework, s/w evaluation report, information systems strategy document, security policy etc must be produced.
* The Project Coordinator has a list of possible project titles which may be consulted. Also you may consult the past projects available in the project library. See the Project Coordinator about this.

# Submission Deadlines

The project workload can be deceptive. As the submission deadline appears far away when you start, there is a danger of wasting time in the early stages of the process. If possible, you should start reading towards your literature review and learning any needed skills in the second semester as soon as your project proposal is completed.

* Start the project as soon as possible and do as much of the writing, e.g. literature review, as you can at an early stage. There are dangers in putting off this task.
* Always allow as much time as possible for the final stages. Final amendments, organising typing/processing and doing a thorough job on the proof reading all take longer than you imagine. Something will always go wrong to thwart your schedule!

The deadlines for the project for 2019/20 are:

|  |  |
| --- | --- |
| Final Report | Friday 20th November 2020 |
| Final Viva/Presentation | Mon 7th/Tues 8th/Wed 9th December 2020 |

Exact details of viva timetables will be circulated by email closer to the time.

**Please note that neither your supervisor nor the project co-ordinator are unable to grant extensions to the above dates**. Any student requiring an extension must apply via the standard form to the University’s Extenuating Circumstances Committee.

**A PROJECT, WHICH IS NOT SUBMITTED WITHIN THE DEADLINE, WILL BE REGARDED AS HAVING FAILED BY NON-SUBMISSION.**

Projects must be submitted in the normal manner for assignment submission currently operated within the School of Applied Computing. ***All projects must also be submitted through TurnItIn. A separate submission link will also be provided for the submission of implementation code, experiment design, simulation data, etc., if applicable.***

Students wishing to submit their project and undertake their viva before the submission dates should discuss this with their supervisor and the program director.

# The Student Supervisor Relationship

## Supervisors

* The supervisor is there to guide you, not to do or write your project for you. The project is your responsibility.
* Your supervisor will be available to see you, every week, at a mutually agreed time.
* Your supervisor is there to guide you but can only do so if contact is regular and frequent.
* Feed your supervisor material on a regular basis. It is unfair to expect detailed comments on a major part of your work at a moment's notice.
* Supervisors will keep a record of your attendance and be asked regularly for a report on your progress.
* Your supervisor has the responsibility of bringing reasonable project resourcing requests to the appropriate person/committee.

## Responsibilities of supervisors

* Help the student with indications of data sources and research methods to be employed. The emphasis must be on what is achievable.
* On finalisation of supervisory arrangements, advise the student of relevant data/literature sources and discuss approaches to the literature review.
* Discuss research design and choice of appropriate methods ensuring that the student has thought through the process adequately, and advice is given on how to refine the design/methodology process.
* Discuss the Plan of Action.
* Meet with student at agreed times, for a total of 15 hours, and keep a note of contact and advice.
* Monitor and Discuss student attendance and progress and advise the Project Co-ordinator of any students causing concern.
* Discuss research findings.
* Read and comment on draft chapters to help students identify any weaknesses in analysis and presentation.
* Read and comment on one complete draft of the Project if submitted in sufficient time.
* Read and comment on draft chapters to help students identify any weaknesses in analysis and presentation.
* Read and comment on one complete draft of the Project if submitted in sufficient time.
* Mark Project other students projects (at masters level your supervisor cannot mark their students project)
* Ensure resources (eg suitable equipment) are available for the project.
* Provide limited technical support as required.
* Recommend any necessary changes to the original proposal to the Project Co-ordinator.
* Complete a Project Supervision form after each meeting.
* Agree to all changes to the project proposal in conjunction with student and Project Co-ordinator.

## Responsibilities of students

* To arrange and attend meetings with project coordinator and/or allocated supervisor on a regular basis.
* To meet with group project supervisor to refine project proposal and discuss plan of action.
* To adhere to the project plan timetable and inform supervisor of any problems.
* To supply a complete final draft in sufficient time (agreed between supervisor and student) for reading and comment. Although he/she will be advised of presentational problems, the student is responsible for accurate citation, the standard of English, overall presentation and proof reading.
* The student is responsible for the submission of the project on the specified date and time.
* The student is responsible for giving a presentation and for answering questions about the project during the viva.
* As a general point, the project process and the production of the project are primarily the student's responsibility. The supervisor is there to help and guide but not to do the work or write it for you.
* If the student has any complaint regarding their supervision, it is their responsibility to report the problem immediately to the project coordinator.
* Maintain a logbook and ensure it is shown to supervisor at regular intervals.

## The Logbook

The student is advised to keep a logbook that records each continuous period spent on the project in chronological order, giving the date, starting and ending times, and a brief description of what was done in that time. Technical details of the work are not required in the logbook, though useful information may be recorded. Meetings with supervisors and others should be recorded.

The logbook may be submitted with the final dissertation document. The logbook records the project process and may be referred to by the assessors if supplementary evidence concerning the student’s work is required. As a minimum the logbook should contain the signed and dated student copies of the Project Supervision Forms.

## Attendance

Student attendance at project meetings with the project coordinator and with individual project supervisors will be monitored closely. Failure to attend project supervision meetings will be recorded and disciplinary measures taken.

# Final Report (70%)

The type of project undertaken by the student depends on the MSc programme being studied and on agreement with the project supervisor. Five types of project are defined, Survey/Data Collection, Review, Experiment, Development, and Analysis. Different assessment weightings have been allocated to these projects according to the nature of the deliverable expected. Therefore, Experiment and Development projects where the deliverable is typically an implementation, design, simulation, etc., have assessment that has been weighted more towards this emphasis. Whereas, Survey/Data Collection and Review projects have assessment weighted more towards literature research and written analysis of results.

## Assessment Marking Criteria

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Survey/Data Collection | Review | Analysis | Experiment | Development |
| Engagement with Literature Skills |  |  |  |  |  |
| Introduction | 5 | 5 | 5 | 5 | 5 |
| Literature Review | 25 | 40 | 30 | 25 | 20 |
| Knowledge and Understanding Skills |  |  |  |  |  |
| Methodology | 5 | 5 | 5 | 5 | 5 |
| Data Collection Process Design/Survey Design | 15 | - | - | - | - |
| Requirements/Design | - | - | - | - | 5 |
| Cognitive and Intellectual Skills |  |  |  |  |  |
| Problem Definition | - | - | 10 | - | - |
| Results & Discussions | 30 | 30 | 30 | 30 | 30 |
| Conclusions and Recommendations | 10 | 10 | 10 | 10 | 10 |
| Practical Skills |  |  |  |  |  |
| Development | - | - | - | - | 15 |
| Experimental Design | - | - | - | 15 | - |
| Transferable Skills for Life and Professional Practice |  |  |  |  |  |
| Reflection | 5 | 5 | 5 | 5 | 5 |
| Quality of Report | 5 | 5 | 5 | 5 | 5 |
| TOTAL | 100 | 100 | 100 | 100 | 100 |

## Suggested Structure for Report

Each project is unique and consequently the sections covered may vary somewhat from project to project. Also some sections may be larger than others and be split into two chapters, especially if the project deals with the convergence of more than one technology.

For example, a study into the use of neural networks in speech recognition may require separate sections/chapters describing the different technologies.

The following is meant to be a **guide** to help you, not a straight-jacket. Each major section should be present in some way, although not necessarily in a chapter of its own. The chapter layout must be appropriate to each particular project.

The project supervisor should be consulted about the best layout for your particular project documentation.

### TITLE PAGE

* Title of work
* Full name of student
* Name of Supervisor
* Name of Second Marker
* Project submitted as part of the requirements for the award of (change course as appropriate).
* Date of submission

**IMPORTANT NOTE:** By instruction of the External Examiner, your cover **MUST** be presented as shown below. ***No colours! No fancy designs! No underlining etc! No images other than the University logo!*** (The project coordinator will make the file containing the University logo available on Moodle for you to use)

It must look very similar to this:

|  |
| --- |
| **A Study of the use of Wireless**  **Underwater Sensor Networks in Swansea Bay**  by  Joe Bloggs  Supervisor: Dr Kapilan Radhakrishnan  Second Marker: Dr Carlene Campbell  Project submitted as part of the requirements for the award of  MSc Computer Networks and Cyber Security  November 2020 |

### DECLARATION FORM and FORM OF CONSENT (see Appendix 1)

This states that the candidate is the author of the Project and the work contained therein has been done by the candidate. See **Appendix 1: Declaration and Form of Consent**.

### ABSTRACT (1 page or around 300 words)

The abstract is **short** summary of the *entire* project. It explains the scope of the study, identifying the problems on which it focused, indicating the elements of the research design and a statement of conclusions and recommendations.

The abstract traditionally is the first thing in a report, even before the list of contents in most cases. The abstract is intended to stand alone and, under certain circumstances, it might be copied and kept separately from the report itself. The idea is that someone could read the abstract and decide from it whether it would be worth their while to read the whole report. Although it is the first thing that appears in the report, it is probably the last to be written.

The abstract is a précis, a summary, a synopsis of the *entire* project. As such, it should summarise the important points from the objectives, the review, the design, the implementation, the evaluation, the conclusions and anything else that is in the main part of the report (though not necessarily everything).

Keep the abstract concise. It should summarise the important points and should include:

1. The overall aim.
2. A synopsis of the methods used.
3. A summary of the major findings and deliverables.
4. A brief mention of the subjects and material.
5. The conclusions based on the results.

### CONTENTS PAGE

Show the main chapter and the sub-chapters. Also provide a List of Tables/Figures.

See the following links for how to generate a table of contents in:

* Word:
  + Office Support: [Insert a table of contents](https://support.microsoft.com/en-us/office/insert-a-table-of-contents-882e8564-0edb-435e-84b5-1d8552ccf0c0)
  + Google: <https://www.google.com/search?q=generate+table+of+contents+word>
* LaTeX:
  + LaTeX Tutorial: [Generate a table of contents in LaTeX](https://www.latex-tutorial.com/tutorials/table-of-contents/)
  + Google: <https://www.google.com/search?q=generate+table+of+contents+latex>

### CHAPTER 1: INTRODUCTION

This chapter is essential. It should start off by setting the context for the work. For example:

* Where did the project suggestion come from?
* What previous research or topic led to your research project?
* Why is it an interesting or important problem?
* Why hasn’t it already been solved?

Usually, you start with a very broad statement of the problem and refine that down to more specific items. Unless yours is a problem area with which all readers of your report will be familiar (very unlikely), you will want to describe the problem in some detail and give sufficient background information for everyone to understand it.

**Project Aim and Objectives**

The introduction should then describe the objectives, aims or goals of your particular piece of work. Your overall aim was presumably to solve a particular problem or to answer a particular question. This could be broken down into a number of specific objectives that together work towards achieving the aim.

**Report Structure**

The introduction should end with a section that leads the reader in to the rest of the report. The important thing is to give your reader a clear picture of what your report is setting out to tell them, and there they will find particular parts of your case.

### CHAPTER 2: LITERATURE REVIEW

The project should include a comprehensive element of review and scholarly research. Your work is done in the context of an academic discipline, computing. Show how it fits into the framework of that discipline. Review books and papers describing the problem you are trying to solve and potential solutions to the problem.

This section gives your reader sufficient background knowledge for them to be able to appreciate why the approach you took was valid or best. Since they may not be familiar with either the problem or the possible solutions or both, you need to provide them with a basic grounding in the important and relevant material. This does not, however, mean that you should include a detailed tutorial.

You also need to demonstrate that you considered all the possible solutions to the problem and that you took all available material into account. This part of the review usually summarises quite succinctly approaches that have been taken by other people in similar situations. Some will have been successful and some not, and this should be indicated. It is perfectly all right to express justified disagreement with something you’ve read - “criticism” is often an excellent feature of a review.

The most important attribute that your review should possess is relevance.

* What other research has been done in your project topic area?
* Who did this research?
* What were their results?
* How do these results relate to other researchers' work in the project topic area?
* Split the literature review into sections, each looking at a different part of the research problem
* Write an introductory paragraph at the start of the chapter that **briefly** describes the sections
* Write a concluding paragraph at the end of the chapter that **briefly** sums up the most important points.

It is strongly recommended that a first draft of this section is developed immediately after the outline project proposal. Ask your supervisor for advice.

### CHAPTER 3: RESEARCH AND/OR DEVELOPMENT METHODOLOGY

Here you explain in detail the what, why and how of the procedures you used in order to generate the solution to the idea.

The ground rule is to describe your method in sufficient detail to allow the reader to replicate your study.

Include:

#### Research Methodology:

* What research methodology/methodologies did you use - experimental (hypothesis testing), investigative, action, survey, case study etc?
* What Analysis & Design activities were undertaken in the development of the product or methodology used for questionnaire design, distribution, collection, and analysis?
* Evaluation Criteria to be used. What methods of testing and statistical analysis were used?
* Materials & Tools. Why did you use a particular package to design & develop your software?
* Procedures e.g. if software was produced, did you use Yourdon, SSADM, Ward-Mellor, RAD, etc? Discuss and justify methodology chosen, compare and contrast methodologies, etc.
* Production of specification requirements and design documentation. Were formal methods or standard documentation methods used?

This section will vary depending on what type of project you are undertaking. Please see 3b/3c/etc. below.

#### Survey Design (for survey-based projects)

This section should explain the following:

* What are the objectives of your survey? (SMART)
* Who is your target group?
* For each question you plan to ask:
  + What is the question?
  + Why are you asking it?
  + Are there any specific links to things in your literature review for this question?
* Is your survey valid? Why?
* Is your survey reliable? Why?
* Is your survey generalisable? How far?
* How did you prototype the survey?
* What changes did you make as a result of prototyping the survey?
* For any questions that have been changed, explain
  + What is the question?
  + Why are you asking it?
  + Are there any specific links to things in your literature review for this question?
* How do you intend to analyse your results?
* What, if any, statistical methods do you plan to use?

#### Experimental Design (for experiment-based projects)

The experimental design section should explain the following:

* What is your experimental hypothesis?
* What hardware are you using?
* What software are you using?
* What were your inputs?
* Is your experiment valid? Why?
* Is your experiment reliable? Why?
* Is your experiment generalisable? How far?
* How did you conduct the experiment?

#### Development Methodology (for development-based projects)

This is a major section which describes your deliverable. It may be a software artifact, a new framework, a systems design, etc. This may span more than one chapter and will have title(s) which reflect its content.

* For your chosen software development methodology explain:
  + Why you have chosen that method
  + What are the advantages of that method to your project
  + If there are any disadvantages to the method then how you will work around them.
* What software are you going to use, and why is it appropriate for the project?
* Do you need any particular hardware, and if so why?
* Materials and Tools. eg why are you using a particular package or language to design and develop your software?

### CHAPTER 4: DESIGN AND IMPLEMENTATION (for Experiment- and Development-based Projects)

This chapter is typically for **Experiment-Based and Experiment-Based projects**. For Survey-based or Review-based projects, see Section 9 below.

This chapter is typically focuses on two areas: Design and Implementation.

#### Design

If you have built something to solve a problem, you had to make some design decisions along the way. Why did you choose to do something one way rather than another? Why did you choose to include one thing but leave out something else? Which factors did you think were most important and which did you choose to ignore?

Don’t just list your decisions; place them in a context. It should be possible for the reader to understand how your design decisions contributed to meeting your objectives. Also important is that you show the method by which you accomplished your design - “process” is as important as “product” to an engineer.

* What processes did you use?
* How did they contribute to ensuring that what you did was complete/consistent/correct?

Don’t just list your decisions; place them in a context. It should be possible for the reader to understand how your design decisions contributed to meeting your objectives. Also important is that you show the method by which you accomplished your design - “process” is as important as “product” to an engineer. What processes did you use? How did they contribute to ensuring that what you did was complete/consistent/correct? Don’t just write about *what* you did, or *how* you did it. *Why* you did it is most important.

The starting point for your design is, of course, your requirements. In some projects the requirements are specified in advance. The customer provides a document that (in more or less detail) specifies the behaviour of the item to be constructed. More commonly, the customer has a more vague “need” for something, and it is part of the project itself to refine that into a more detailed set of requirements. A project that doesn’t have a written set of requirements is not a very good one, though it would not be normal to describe the requirements in much detail in the body of the report. It is better to include the requirements specification document as an appendix to your report. If a *detailed* discussion of how you elicited, analysed and specified the requirements is necessary, (for “necessary”, read interesting and relevant), it could be a separate chapter before this one.

A project that does not have a written set of requirements is not a very good one, though it would not be normal to describe the requirements in much detail in the body of the report. It is better to include the requirements specification document as an appendix to your report. If a *detailed* discussion of how you elicited, analysed and specified the requirements is necessary, (for “necessary”, read interesting and relevant), it could be a separate chapter before this one.

The “design” stage is often held to be the key stage of your project. It is certainly the part of project reports that is most closely looked at by external examiners! It is the one where you can show off your ability to apply your engineering and commercial knowledge and skills to best advantage. This is precisely what you will be doing in your working life if your chosen career is in any way related to your degree.

In terms of computing projects, this section will include details of algorithms, data structures, file systems, user interfaces etc.

#### Implementation

After you designed your solution to your problem, you implemented it. This section normally describes how you did that. What tools and techniques did you use? What difficulties did you encounter, and how did you overcome them?

Some students believe that this section is equivalent to writing the internal documentation of a program. It is not. This chapter of your report should only address issues that are *interesting*. Mundane details about how the program is structured should be left out. On the other hand, if you developed a new algorithm or applied an old technique in a new way, then that is of interest and should be included.

**Development Projects**

Do not include all or significant amounts of code in your report, only include code fragments to illustrate a technique that was used. Focus on why you have implemented the system, application, program, etc, in the way you have to achieve the results you have obtained.

**Experiment Projects**

You devise an experiment to test your hypothesis. You should describe the implementation of the experiment.

If, in your project, you designed something but did not build it, there may still be scope for an equivalent to this chapter, in that you could discuss issues that would probably arise during future implementation and provide advice on how potential problems could best be prevented or solved.

### CHAPTER 4: ANALYSIS (for Survey- and Review-based Projects)

This chapter is typically for Survey-Based or Review-Based projects. See previous section for Development-based or Experiment-based projects.

**Survey-based Projects**

This section should analyse the data collected via your survey questionnaire(s).

* For each question in the survey:
  + What were the results?
  + If appropriate, show the results diagrammatically
  + If appropriate, show the results of any statistical analysis
  + Were they what you expected?
  + If they are not what you expected, is there any reason for this?
  + How does this link back to your literature review?
* Are there any interesting correlations in your data? If so, are they expected?
* If you have done interviews as well as questionnaires, do the interviews agree with or differ from the results of the questionnaires? Do the interviews agree with or differ from the literature review?

Use graphs and tables wherever possible to support your words. Further data may be included in the appendices.

**Review-based Projects**

It may be appropriate to combine the Literature Review and Analysis sections, and place it after the Research and Development section. Ask your supervisor for guidance on this.

### CHAPTER 5: RESULTS AND DISCUSSION / EVALUATION

Evaluation usually comes in one of two forms: either you compare what you did with your objectives, or you can compare what you did with what someone else did. Describe the finished, working product. Set out your findings using tables and graphs as appropriate, but keep them as clear as possible. Include the data central to your thesis in the text; consign other material to appendices. Avoid repetition and redundancy in your reporting.

Involving potential users of the system in the evaluation is always a good idea. If this can be done in a simulation of the real environment, then so much the better. Feedback from users which is structured is more useful than their verbal comments.

* What conclusions can be drawn from your data?
* Did your data back up the research in your literature review or disagree with it?
* Did you meet your objectives? If not, why not?
* Did you meet your aim? If not, why not?
* Overall, are the answers what you would expect? If not then why not?
* If you were to do it again, what would you do differently?

You do not want to give lots of boring, mundane detail here. So, for example, you would not normally describe in excruciating detail exactly what tests you conducted and their results, but you would describe in general terms what you did (your strategy) and what results you obtained.

Use graphs and tables wherever possible rather than words. Further data may be included in the appendices.

### CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

* This section should summarise everything you have done
* Does your project suggest any further avenues for research?

This chapter is where you tie up all the loose ends in the previous chapters. It is most important that it relates to what you have described previously, and that it does so in a relevant and concise fashion.

In your summing-up, you need to show how what you did contributed to meeting the objectives you set in the introduction. In doing so, it is appropriate to repeat (in summary form) key points from your review, design, implementation and evaluation as necessary.

Any further work that can, or should, be undertaken to expand upon your work is to be highlighted, fully explained and justified. The benefits gained from your work should be identified (these are **not** to include personal benefits). Also, any recommendations should be included here.

It is perfectly OK to have some loose ends left at the end of a project. Sometimes there will be aspects you simply did not have time to address. Other times there will be things that you were unable to do because of force of circumstances. Above all, there will have been pointers raised during the course of the project that you did not anticipate and were not within your scope to tackle. All these things can be discussed in this chapter and, where further work can be identified, a distinct sub-section, “Suggestions for further work”, should be included.

### CHAPTER 7: REFLECTION

You will need to reflect upon the work that you have done. Reflection is the process of looking back at something which has happened in order to show what you have learned from it. The purpose of reflective writing is to help you learn from a particular practical experience. It will help you to make connections between the documented theory and what you did in practice. Through reflection, you should be able to make sense of what you did and help yourself to do a superior job next time. Put simply - could you have done it better and, if so, how?

### REFERENCES

A list of references (work directly quoted or paraphrased in your text) and its source. For more information on this, **see section 8.3.3 Referencing Conventions**.

### BIBLIOGRAPHY (Optional)

A list of background reading undertaken, but not necessarily directly quoted in the text. This section is optional. It should also use the recommended referencing format.

### APPENDICES

Appendices to a report contain information that, while not important or interesting enough to be included in the body of the report, is nevertheless relevant. Common examples include program source code, program documentation, intermediate documents, etc. Your report stands alone without these, but the reader may occasionally wish to refer to them.

The key word here is “occasionally”. If it is crucial to read something in order to understand some point being made in the report, then that “something” should be replicated in the body of the report.

* All data used in the development of the project.
* Annotated code for any programs developed.
* Examples of questionnaires
* A summary of questionnaire results.
* Test data used to evaluate the product.
* Tables too detailed for the main text
* Technical notes
* Copies of documents not generally available but referred to in the report

## Presentation Style of Report

In presenting your project there are five factors to consider:

* Structure of the Work
* Visual Presentation
* Referencing Conventions
* Word Limit
* Style Requirements

### Structure of Work

Your project should be a logical expression of your thinking on a particular topic of research. Having carefully considered the topic over a number of months, take time to plan the structure of your project documentation. Ask yourself what is required, in what order the points are most effectively made, and what conclusions could appropriately be drawn.

The Project has a given word limit. It is important that you adhere to this. No-one is likely to mark you down for delivering 15,500 words when you were asked for 15,000, but excessively long pieces of work could lose marks. By contrast, "undershooting" the word limit also jeopardises your chances of passing or getting a good mark. **It is important to remember that the word limit is part of the task.**

Condensing a lot of information/ ideas into a well-structured answer within the word limit is a real skill. It shows you have the ability to sift information, construct an argument, and express yourself succinctly. If you have difficulty "pruning" material to fit a word limit, look for verbosity. Economy of words and clarity of expression are important. Sometimes, it may be useful to create footnotes/endnotes or appendices so that you can refer to information without losing the thrust of your argument.

### Visual Presentation

You should take care to present your work in the most attractive and effective format. It is a requirement that you submit your work in a word processed format thereby allowing for a legible document that can be assessed by your supervisor.

Spelling should always be checked as part of the proof reading process. A poor standard of spelling will invariably be marked down as will poor sentence construction and punctuation. Be careful when using the spell checker on the word processing package that it is set to UK English and **not** US English.

Graphs, histograms and diagrams are worth considering when you have numerical information to present. Equally, label such visual representations so that the reader does not have to work out what it is supposed to mean. All code should be annotated, both for understanding by examiners reading the work and for any future maintenance.

Leave margins on both sides of the page so that comments do not have to be squashed into the space between the lines! Also make sure that your work has your name, the lecturer's name, the date and the title on the front page.

### Referencing Conventions

`When you refer to a piece of work in an essay, report, program or academic paper, you must give adequate bibliographic information to allow the reader to trace the original document. (For notes on Plagiarism See Appendix 3: Plagiarism). So, if you wish to incorporate points made by another author or figures derived from a survey or report, acknowledge the sources used in the text of your project and give full details of the source in the reference list at the end of your work.

A reference is usually in two parts:

1. a marker at the end of the text being quoted or referred to, and
2. a complete citation in either a footnote or, more usually in computer science, collected with other citations in a “References” section at the end of your work.

Note sometimes you will find references at the foot of the page rather than at the end of the work but it is simpler to provide an alphabetical list at the end of the project.

#### The Numeric System

The school recommends using the numeric system.

See: <https://ieeeauthorcenter.ieee.org/wp-content/uploads/IEEE-Reference-Guide.pdf>

***Citations*** use a sequential number scheme, with the citation number enclosed in square brackets corresponding to the appropriate reference provided at the end of the document.

**Examples:**

**In your work:**

...... as Smith [14] has shown ......

...... blue has been shown [14] to be the best ......

**In the Bibliography at the end:**

[14] A. Smith, *A Book Title,* 2nd ed., Wiley, 2002

The numbering should be sequential as citations are used, the first reference used in the document should begin with one, the second is two, etc. If the same reference is used in the document then you may repeat the previously assigned reference number e.g.

**In your work:**

….. from Smith [1] we find that ……

….. Jones et al [2] also states …….

….. it has been shown [1] that ……

….. which matches similar findings [3] …..

…. other research [1][2][3] has proven …..

**In the Bibliography at the end:**

[1] A. Smith, *A Book Title,* 2nd ed., Wiley, 2002

[2] D. Jones, B. Thomas, *Another Book Title*, O’Reilly, 2004

[3] K. Smith, *Yet Another Book Title*, Chichester: Wiley, 2006

When using a reference you do not explicitly need to specify the author(s) name, but specifying the author’s name can increase readability. Also, if many authors contributed to the book, paper, etc, then identify the first author and use “et al” to indicate that there were many contributors.

**In your work:**

….. it has been shown [2] that ……

….. Jones et al [2] also states …….

Quotations should be placed in quotes, italicized and tabbed from the edge, with a clear reference to the source. In addition, for clarity it is recommended that a single blank line be added before and after the quotation

For example:

“*It becomes clear that, in most cases, the goal of finding out about people through interviewing is best achieved when the relationship of interviewer and interviewee is non-hierarchical and when the interviewer is prepared to invest his/her own personal identity in the relationship*” Bloggs et al **[6]**

The author’s name (Bloggs et al) in the above is optional but is included for readability.

#### When should a citation be used?

1. All direct quotes must be cited.
2. Even when you have translated an author’s words into your own (which you should make every effort to do), you must still give them credit by including a citation. When an entire paragraph of material is based on one author’s ideas, you only need place one citation at the end of the paragraph. Exceptions to this rule follow in (3) and (4).
3. All statistics that are cited require a citation immediately following the sentence in which they appear.
4. All historical events and dates mentioned require a citation.
5. References should be included for all websites used.

#### Reference Information and Structure

All references should be added to a “References” section included towards the end of the document.

The details which need to be included in references (author, title, etc) depend on the type of publication you are citing (articles, books, etc). For the commonest types of publication, the examples below show the information you should give, as well as the correct use of italics and punctuation.

Accessed from:

<https://ieeeauthorcenter.ieee.org/wp-content/uploads/IEEE-Reference-Guide.pdf>

There are a number of referencing systems but **the *Numeric* system** is the system that MUST BE USED for the project.

### Word Limit

The project documentation has a word limit of approximately 20,000 words. Other relevant material, e.g. code listings, may be included in appendices and are not subject to the word limit.

The word limit is set for the following reasons.

1. The discipline to write at this length is considerable. It is a substantial piece of academic work yet it requires good editorial skills to avoid excessive length.
2. It encourages incisiveness and a good grasp of technical/theoretical issues to bring them into sharp focus.
3. It necessitates a tight definition of the topic.
4. It necessitates a meaningful analysis of the relevant literature not a mere listing of sources with brief comments.
5. It necessitates communication of complex ideas in clear and precise fashion.

### Style Requirements

The Project has to be presented in a standard format. You should make sure that the final submitted versions of your work conforms to the following specifications. If in any doubt, consult your supervisor or the Project Co-ordinator.

**General Style Requirements**

* White, **A4 size** in portrait format to be used. Seek guidance for any larger, illustrative material.
* Black word-processed print to be used. The font chosen for the main body of the finished work **should be easy to read, e.g. Times New Roman, Arial, Calibri, and a font size of 12**. For highlighted text or other specific purposes a second font may be used but excessive usage is to be avoided and kept to a minimum.
* **Text should be 1.5 or double-line spaced (do not use single-line spacing)**.
* For successful binding, the left margin on each sheet should not be less than 40 mm, other margins to be not less than 20 mm.
* **Pages shall be numbered consecutively throughout the main text** (including appendices) in Arabic numerals (preliminaries in Roman). Numbering should be bottom centre of each page, approximately 10 mm away from the edge.
* Main text should be divided into chapters beginning with an introductory chapter which sets the scene. **Each chapter should begin on a separate page**.
* Illustrative material should be arranged near the appropriate text.
* **Tables and figures should be given a caption** (a number, a title, and a reference source if not derived from original research work). As with other illustrative material, they should be placed as close as possible to any text reference and referred to by their number in the text. **Use landscaped sections for wider tables or figures**.

## Other General Points to Note

### Assessment

The breakdown of marking criteria is shown in section 9.1 (Assessment Marking Criteria) of this handbook. In arriving at an assessment mark, a number of factors will be taken into account by the markers, some of which are listed below:

* The original aims and objectives of the Project were clear, satisfactory at honours degree level, and had been fully met.
* The relationship between the current and previous research in the topic area was defined, with similarities and differences considered.
* The methodology employed was appropriate and applied in a suitable manner. Where knowledge was gathered from external sources valid and reliable methods were used. Critical use was made of published work and source materials.
* Due credit was given to previous workers for ideas and techniques used by other authors. There is a clear appreciation of the relationship of the special theme to the wider field of knowledge. Where a conceptual framework was used/developed, use was made of it in a systematic way.
* The document was organised in a logical manner and the style is attractive.
* The ideas presented and software developed display original and creative thought.
* The work opens up possibilities for future projects and research.
* A working system that meets the requirements laid down in the project specification was developed.
* The system produced was evaluated through the application of appropriate test data.
* The challenging nature of the project.
* The degree to which the project is original, creative and interesting.
* The quality, reliability, timeliness and maintainability of the deliverable.

The more of the following your report has, the lower the mark it will attract:

* errors of fact;
* vague aims and objectives;
* vague requirements for artefacts;
* unexplained or ill-judged design decisions;
* little or no analysis, solely descriptive;
* trite conclusions;
* misinterpretations of literature;
* development of poor quality artefacts;
* work that was facile;
* little evidence of work done by the student;
* spelling mistakes, poor grammar, odd structure, crazy layout.

Some of the above are mutually dependent – a project with weak practical outcomes is likely to be weak on conclusions as well.

### Plagiarism

Plagiarism is defined as the unacknowledged use of another's work as if it were one's own. To illustrate, if you when you are evaluating the state of the art of a subject area you come across a really good section in a textbook or research journal that made a salient point and you copied it without acknowledgement, that would be plagiarism. So using the words of another author, or even using figures from elsewhere, without saying where they came from is a serious academic offence. What you are doing really amounts to theft of another person's intellectual property and deception in trying to pass it off as your own work. This is regarded as very serious.

The following are clear examples of plagiarism:

* Using directly quoted material without placing it within quotation marks (or indenting and single spacing the quote);
* Paraphrasing the work of an author and attempting to pass it off as your own by not including a citation;
* Submitting the work of someone else as if it is your own.
* Incorporating a piece of program code within your solution without reference to the source.
* Inability to defend written work in a viva situation.

You can, of course **use** the ideas, program code and data of others - there is no problem if you acknowledge the source. That is why the referencing system is so important. See Appendices 4 and 5 for more detail on this.

Plagiarism is a serious matter and will not be tolerated. Disciplinary action will be taken against transgressors.

### Handing in your Project Report

* All projects must be submitted to TurnItIn via the link on Moodle.
* Your report should include a page with the Declarations and the Form of Consent. These should be included just after the title page. A copy of the forms can be found in Appendices 1 and 2.
* If you have source code, installation instructions, experiment design, simulation data, etc., please hand submit these to the Code/Simulation files submission link available on Moodle.

# Final Viva (20%)

The student is required to undertake an Individual presentation. This partly enables authentication of the work to ensure it is that of the student by providing an opportunity for close questioning of the deliverable. In addition, the markers will verify that the deliverable performs as indicated in the final report to allow marks to be adjusted accordingly. The presentation requires the student to defend their work in a formal setting before both markers. For students completing a survey or review project, an extended viva is used to allow the student to provide a more in-depth justification for research approach, analysis and findings.

The viva voce will consist of a fifteen to twenty minute presentation by the student on his/her project followed by a fifteen minute question and answer session where the student will have the opportunity to demonstrate his/her knowledge of the work undertaken and to identify issues that may have been omitted from the final submitted document.

## Assessment Marking Criteria

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Survey/Data Collection | Review | Analysis | Experiment | Development |
| Knowledge and Understanding Skills |  |  |  |  |  |
| Response to Questioning | 30 | 30 | 30 | 30 | 30 |
| Cognitive and Intellectual Skills |  |  |  |  |  |
| Discussion of Findings | 50 | 50 | 50 | 30 | 30 |
| Practical Skills |  |  |  |  |  |
| Demo | - | - | - | 20 | 20 |
| Transferable Skills for Life and Professional Practice |  |  |  |  |  |
| Presentation Style | 10 | 10 | 10 | 10 | 10 |
| Supporting Materials | 10 | 10 | 10 | 10 | 10 |
| TOTAL | 100 | 100 | 100 | 100 | 100 |

# Electronic Journals and Databases

The main library web pages are available at <https://www.uwtsd.ac.uk/library/>. Links from here include: General library information; Library Account; Library catalogue; Subject Guides plus Electronic Journals and Databases.

Access to electronic journals and databases is available from <https://www.uwtsd.ac.uk/library/online-library/>. You can access these resources from your personal/home network and other off-campus networks via this link. You will be prompted to log in to gain access to the resources when connecting from other networks.

The following databases are accessible via the web pages:

* [Academic Search Premier](https://ezproxy.uwtsd.ac.uk/login?url=http://search.ebscohost.com/login.aspx?authtype=ip&profile=ehost&defaultdb=aph)
* [ACM Digital Library](https://ezproxy.uwtsd.ac.uk/login?url=http://portal.acm.org)
* [Business Source Complete](https://ezproxy.uwtsd.ac.uk/login?url=http://search.ebscohost.com/login.aspx?authtype=ip&profile=bsi)
* [IEEE Digital Library [Technology]](https://ezproxy.uwtsd.ac.uk/login?url=http://ieeexplore.ieee.org)
* [IHS](https://ezproxy.uwtsd.ac.uk/login?url=http://www.ihsti.com/logon/logon.aspx?reqcode=iplogon)
* [Marketline](https://ezproxy.uwtsd.ac.uk/login?url=http://advantage.marketline.com)
* [NewsBank](https://ezproxy.uwtsd.ac.uk/login?url=http://infoweb.newsbank.com)
* [ProQuest Central](https://ezproxy.uwtsd.ac.uk/login?url=https://search.proquest.com/central)
* [SAE Digital Library](https://ezproxy.uwtsd.ac.uk/login?url=http://digitallibrary.sae.org/quicksearch)
* [Science Direct](https://ezproxy.uwtsd.ac.uk/login?url=http://www.sciencedirect.com)

Other resources available:

INSPEC: the world’s leading database of information on computing, information technology and other related areas, e.g. engineering, covering 1969 – 2002. (Please ask at the counter in the Thompson Library).

Additional useful websites:

British Library Public Catalogue: <https://www.bl.uk/>

Google search engine: www.google.co.uk

# Problems, Grievances, and Appeals

Should students have any problems regarding the supervision arrangements, personal difficulties with their supervisors, or concerns regarding the fairness of the assessment process, they should, in the first instance, discuss matters with their project supervisor.

Failing this they should arrange to see the project coordinator, course director, head of School, in that order.

Details of appeals procedures are found in the student handbook.

ADDITIONAL READING

Christian W Dawson. *The essence of computing projects: a student’s guide*. Prentice Hall, 2000. ISBN 0-13-021972-X. Publisher’s price £16.99. An excellent guide to projects in general.

Gavin Fairbairn and Christopher Winch, *Reading, writing and reasoning - a guide for students*, Open University Press, 2nd edition 1996. (£10.99. An excellent guide to technical writing and style.

Phyllis Creme and Mary Lea, *Writing at university - a guide for students,* Open University Press, 1997. (£9.99). A useful guide to techniques of writing.

H W Fowler and Robert Burchfield, *The New Fowler’s Modern English Usage*, Oxford University Press, 1996.

References

Panko, R. R. (2007). Two experiments in reducing overconfidence in spreadsheet development. *Journal of Organizational and End User Computing, 19*(1), 1-23.

# Appendix 1: Declaration and Form of Consent

DECLARATION

I, ............................................(FULL NAME)………………………………… declare that I am the sole author of this Project; that all references cited have been consulted; that I have conducted all work of which this is a record, and that the finished work lies within the prescribed word limits.

This work has not previously been accepted as part of any other degree submission.

Signed : .............................................

Date : .............................................

FORM OF CONSENT

**I** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hereby consent that my Project, submitted in candidature for the *M.Sc. Applied Computing*, if successful, may be made available for inter-library loan or photocopying (subject to the law of copyright), and that the title and abstract may be made available to outside organisations.

Signed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Where necessary replace *M.Sc. Applied Computing* with your named award.

# Appendix 2: Ethics Approval Form

Ethics Approval Form

Before you complete this form, please take time to carefully consider the following questions:

Have you considered yet whether there are any problematic ethical issues in your proposed research project? If you have not you should talk to your Course Tutor or Supervisor.

Have you already completed an Ethics Approval Form? Yes – *then* *you do not need to complete this form*

No – please complete this form in as much detail as you can

|  |  |  |  |
| --- | --- | --- | --- |
| Name: |  | | |
| Project/Research Title: |  | | |
| Name of Supervisor: |  | | |
| School/Dept. |  | | |
| Faculty: |  | | |
| Proposed Start Date: |  | End Date: |  |

**1. Summary of planned research** (please indicate below the purpose of your planned project/research, together with your aims, main research questions and research design – you should continue onto a separate sheet if necessary)

|  |
| --- |
|  |

**2. Methodology** (You need to be clear about the methodology you intend to use in your study; this could include any number of methods, so either tick those shown below (where appropriate) or put the details in the box marked \*)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Interviews |  | Participant Observation |  | Use of personal data |
|  |  |  |  |  |  |
|  | Focus groups |  | Questionnaire |  | Literature Review |
|  |  |  |  |  |  |
|  | Performance |  | Presentation |  | Other (state below)\* |

|  |
| --- |
| \* |

**3. Participants** -Does your proposed project/research involve human participants?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1. Yes, as a primary source\* |  | 2. Yes, as a secondary source\* |  | No- go to section 4 |

\*If you have ticked yes, it is likely you will need an Advanced CRB check before undertaking your study

**If yes**, indicate who your participants are:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Early years/Pre-School children |  | Adults - give details below |  |
|  |  |  | |  |
|  | School age children |  | Vulnerable people - *give details below* |  |
|  |  |  | |  |
|  | Young People aged 17-18 |  | | |
|  |  |
|  | Unknown at this stage |

**4. Ethical issues** - you should tick all that apply

|  |  |  |  |
| --- | --- | --- | --- |
|  | Administration of drugs incl. alcohol |  | Deprivation |
|  |  |  |  |
|  | Unpleasant stimuli in any manner or form |  | Active deception or withholding information |
|  |  |  |  |
|  | Collection of highly personal information |  | Payment |

5. Are there any ethical concerns other than those listed above? *(continue onto a separate sheet if necessary)*

|  |
| --- |
|  |

6. If there are any ethical concerns, please state how you intend to minimise any risk of harm or distress that could be caused *(continue onto a separate sheet if necessary)*

|  |
| --- |
|  |

You should enclose any materials (e.g. questionnaire, interview schedule), plus the Consent Form, and the Debriefing Sheet when submitting the Ethics Approval Form to your supervisor.

Student Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Advanced CRB check required |  | CRB confirmation received - Date:­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |
|  |  | | |  |
|  | Recommendation of approval given at Faculty Level | | |  |
|  |  | | |  |
|  | Approval not given at Faculty level – forwarded for discussion at the next meeting of the University Ethics Committee | | |  |
|  |  | | |  |
| Comments: | | | | |

Signature: (Assistant Dean/Head of School) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Faculty recommendation endorsed by the Ethics Committee | Chair’s Initials |  | Date |  |

# Appendix 3: Plagiarism

Plagiarism is defined as the unacknowledged use of another's work as if it were one's own. To illustrate, if you when you are evaluating the state of the art of a subject area you come across a really good section in a textbook or research journal that made a salient point and you copied it without acknowledgement, that would be plagiarism. So using the words of another author, or even using figures from elsewhere, without saying where they came from is a serious academic offence. What you are doing really amounts to theft of another person's intellectual property and deception in trying to pass it off as your own work. No wonder it is regarded as very serious.

The following are clear examples of plagiarism:

* Using directly quoted material without placing it within quotation marks (or indenting and single spacing the quote);
* Paraphrasing the work of an author and attempting to pass it off as your own by not including a citation;
* Submitting the work of another student as if it is your own.
* Incorporating a piece of program code within your suite without reference to the source.

You can, of course **use** the ideas, program code and data of others but you must acknowledge the source. That is why the referencing system is so important. If you come across an apt quote, a useful statistic, or merely want to signal that someone else has written on a particular issue before, there is no problem if you acknowledge the fact properly

Plagiarism is a serious matter and will not be tolerated. Disciplinary action may be taken against transgressors. All occurrences will be reported to the Chair of the Examination Board.

# Appendix 4: Project Assessment Guidelines

|  |
| --- |
| Outcomes and Assessment Criteria  To achieve each outcome a student must demonstrate the ability to: |
| 1. Appraise critically the literature pertaining to a problem domain.  * Describe clearly the aim of the research. * State clearly and precisely the hypotheses to be tested, questions to be answered or objectives to be addressed. * Define the relationship between the current and previous research in related topic areas, stressing similarities and differences. * Demonstrate knowledge of the underlying concepts and principles associated with the topic under investigation. * Demonstrate an ability to make critical use of published work and source materials. * Reference literature pertinent to the research * Avoid criticism of insufficiency or excessiveness with general reference to the literature. * Give due credit to previous workers for ideas and techniques used by the authors. * Display evidence of the ability to identify key items in the literature and to compare, contrast and critically review them. * Appreciate the relationship of the special theme to the wider field of knowledge. * Attempt to present previous work within an overall conceptual framework and in a systematic way. |
| 1. Evaluate, select and apply relevant research and development techniques.  * Demonstrate competence in independent work or experimentation. * Employ an appropriate research methodology. Justify and describe adequately its application. * Recognise variables that might influence and limit the study. * Demonstrate evidence of care and accuracy in recording and summarising the data. * Display evidence of knowledge of, and the ability to use, all relevant data sources. * Employ an appropriate development methodology. Justify and describe adequately its application. * Consider ethical risks and how they will be controlled. |
| 1. Analyse rigorously the practical and theoretical evidence gathered and design and develop a solution to the problem situation.  * Report coherently the results of the research. * Apply the chosen development methodology to the development of the proposed system, including the techniques of analysis and design used. * Create a working system that meets the requirements identified. * Evaluate the system through the application of test data. * Relate the findings to the aims and objectives of the study. * Compare the findings with the findings of similar studies and the literature * Demonstrate skills of analysis. |
| 1. Generate and justify appropriate conclusions based on the previous analyses, demonstrating awareness of the limitations of the research.  * Synthesise theoretical and new material to generate critique and justify valid conclusions and recommendations. * Consider the extent that the conclusions overturn or challenge previous beliefs. * Appreciate the realism and practicalities of the situation. * Consider the achievement of the specified objectives. * Delimit the new contribution and identify prospects for further work |
| 1. Produce an organised and structured document that adheres to academic convention.  * Organise the document logically. Clearly delineate sections, and ensure that they contain appropriate content. * Create an attractive layout. * Write in an appropriately academic style. * Ensure that the submission is structured not disjointed, indicating a systematic approach. * Employ accurately a suitable referencing system with bibliography. * Write a fluent, coherent submission, with correct spelling and grammar |
| 1. Present the findings of the study to a specialist audience.  * Present information in a variety of forms. * Demonstrate selectivity of topics for discussion. * Respond appropriately to questioning, demonstrating comprehensive knowledge of the topic. |