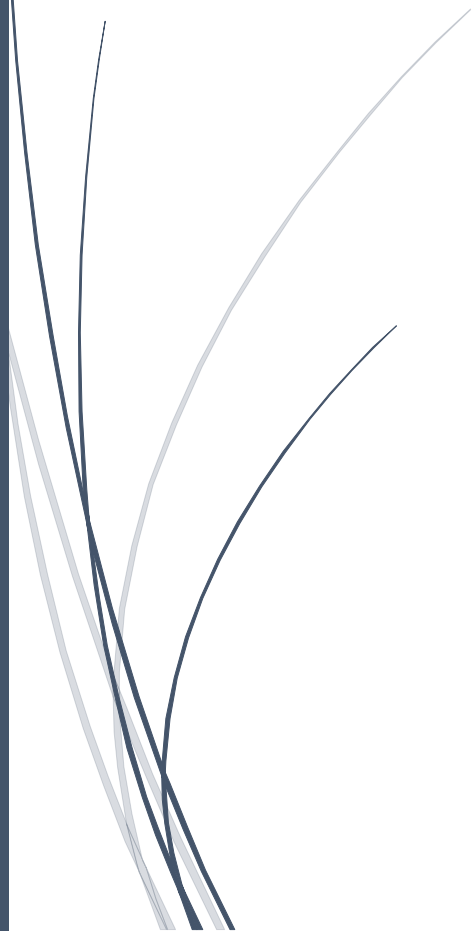
September 2020

BSc (Hons) in Computing

Capstone Project Overview



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Introduction

This module requires the learner to investigate, propose, design, implement, test, document and present a project appropriate to their ICT specialisation.

The project is a capstone module providing learners with the opportunity to apply the skills and knowledge acquired during the taught elements of the programme. The project will involve the analysis of a substantive issue or opportunity and subsequently the production of a thesis for the solution of the issue or opportunity. The project will be related to the learner's chosen stream and, where possible, to their work placement.

It is envisaged that the learner will produce a useful software artefact, with significant challenges and depth, which will enhance his/her future job prospects.

The project begins in year 4 and runs over the entire academic year. A project proposal must be submitted in week 4 of the module, outlining the project aims and objectives and providing a work plan. An assessment of the proposal will be carried out and must be passed before work on the project commences.

To ensure progress and formative feedback, the learner will submit an interim report for assessment in week 12 of the module. It is expected at this stage that project plan will have been completed, that the project will be fully scoped and that the deliverables and timelines for the remaining part of the project will be clearly defined. It is also expected that a significant evidence of literature review and research activity will be detailed in the interim report.

In completing their projects, learners are required to work independently, under the supervision of an assigned supervisor, who will provide advice and guidance as required. Learners must meet with their supervisor on a regular and timely basis. Meetings can be supplemented by email, messaging or Skype sessions.

The final artefact and final project report must be submitted two weeks before the scheduled end of the module. The project supervisor and a second reader will assess both of these components of the project. The learner will also be required to make a presentation of their project to a group of their peers as well as the module leader, his/her supervisor and a second reader.

Project Proposal

Project Topics

An idea for the project topic may come from a learner's own interest in a particular area or from ideas suggested by a project supervisor, an external organisation or other sources.

It is important that the learner confirms the appropriateness of a topic with a supervisor and the module leader as early as possible.

The module leader may refer the proposal to the DBS Ethics Committee.

Project Proposal

Before starting the project, a learner is required to write a project proposal, which will be assessed by a supervisor and a second reader. The proposal must receive an 'acceptable' status before the learner commences work on the project.

The proposal content and format may be specified by a supervisor, but should minimally contain the following:

- A cover sheet containing the project title, learner's name, e-mail, student id, stream, date and the name and signature of the approving supervisor.
- The learner's personal learning objectives.
- Project scope and objectives:
- The scope and objectives of the proposed project should be well defined and achievable.
- A clear technical specification of the project.
- Equipment and critical resources required to complete the project.
- A Project Plan.
- A weekly schedule, indicating the proposed project's 'milestones', which must be clear, concrete and achievable.
- References and bibliography in Harvard referencing style.

A typical project proposal will contain 1,000 words, excluding appendices and bibliography.

Submission of Project Proposal

A hard copy and an electronic copy of the proposal must be submitted to the module leader in week 4 of the module.

The module leader will e-mail the learner with a response to the submitted proposal as follows:

- 'Accepted': the learner may start work on the project
- 'Conditionally Accepted': the learner must modify the proposal. The proposal must be resubmitted within five working days of this notification.

- ‘Rejected’: the proposal is unacceptable and a new proposal must be submitted within eight working days of this notification.

Project Meetings

Learner-Supervisor Meetings

A learner must meet his/her supervisor at least once per week. Normally meetings will last between twenty and thirty minutes.

Arrangement of these meetings is the responsibility of the learner. Before a meeting, the learner must prepare an agenda of items to discuss with his/her supervisor.

The supervisor and learner will agree on the work to be done before the next meeting using the Project Meeting Log in Appendix 1.

Project Reports

Interim Report

The interim report is a major milestone in the project life cycle. The learner must submit an electronic copy and a hard copy of the interim report to his/her supervisor in week 12 of the module.

The interim report details the progress to date in addition to the plans for the completion of the remaining work in the project.

The report content may be specified by the supervisor but should minimally contain the following:

Title Page	The title page should contain the following information: • The name of the Institution: Dublin Business School • The course title: BSc (Hons) in Computing • The course stream

	• The title of project • "Interim Report" • The name of the author • The author's student id • The author's e-mail address • The name of the supervisor • The submission date
Acknowledgments	A brief paragraph or two acknowledging professional advice and help in submitting the report.
Contents	List of contents, including tables and figures, with page numbers.
Introduction	The introduction provides the reader with an overview of the project. A good introduction will inform the reader what the project is about without assuming any specialist knowledge and without detail that may obscure the overview. The reader is assumed to be knowledgeable but not necessarily an expert in the field of the project. The introduction should anticipate and combine main points described in more detail in the rest of the report. The Introduction contains: • the aims of the project; • the scope of the project; • the approach used in carrying out the project; • assumptions, if any, on which the work is based.
Background	The purpose of the background is to provide the reader with the information that they may not know but which they will need in order to fully understand and appreciate the rest of the report. The following is an indicative list of items that should be included in the background section: • the context of the project; • the anticipated benefits of the system; • typical users of the project product; • any theory associated with the project; • the software development methods used; • any relevant existing software/hardware.
Literature Review	A review of the current literature that is relevant to the project.

Specification and Design	The Specification and Design section should give the reader a clear picture of the system to be developed and why it is being developed it in a particular way rather than in another way. In brief: • Specification o To inform the reader what the software system is required to do. • Design o The top-level details of how the software meets the specification. Extensive use of diagrams, such as entity-relationship and UML diagrams will be included in this section.
Testing and Evaluation	A description of the testing carried out and an evaluation of the project to date.
Future Work	A review of status of the project in terms of the proposed goals and project plan. Suggestions on refinements or changes in direction from original project proposal should be made here. These must be justified.
References and Bibliography	References and bibliography in Harvard referencing style.
Appendices	

A typical interim report will contain 2,000 words. Word count excludes bibliography and appendices and is subject to a maximum tolerance of ±10%.

Final Project Report

This report is the permanent record held by DBS of the learner's work and is therefore a most important milestone in the project life cycle. The report builds on the interim report and demonstrates a learner's capacity to conceive a project idea, conduct research on and implement that idea.

The final report should be submitted both electronically along with a professional bound copy. Electronic submission is via Moodle, while the bound hard copy must be handed in to the Castle House or Aungier Street reception and a receipt obtained.

The final report content may be specified by the supervisor but should minimally contain the following:

Title Page	The title page should contain the following information: • The name of the Institution: Dublin Business School • The course title: BSc (Hons) in Computing
	• The course stream • The title of project • "Final Report" • The name of the author • The author's e-mail address • The author's student id • The name of the supervisor • The submission date
Abstract	This is, at maximum, a quarter page summary of the project.
Acknowledgments	A brief paragraph or two acknowledging professional advice and help in submitting the report.
Contents	List of contents, including tables and figures, with page numbers.
Chapter 1: Introduction	Further refinement and additions to the introduction in the interim report.
Chapter 2: Background	Further refinement and additions to the background section in the interim report.
Chapter 3: Literature Review	A final review of the current literature that is relevant to the project.
Chapter 4+: Project Specific Chapters	The learner should discuss with his/her supervisor, the organisation and content of these chapters.
Second last Chapter: Results and Evaluation.	This chapter contains a clear description of the results of the project. The chapter also contains a description of the results of the final tests carried out on the project product. An important section in this chapter is the evaluation of the final project, where the learner demonstrates the ability to critically evaluate the work done, the shortcomings in the project and so on. Objectivity is important when writing this chapter.

Last Chapter: Conclusions and Future Work	A review of what the project achieved. A final review of the project in terms of the proposed goals and project plan. Any changes from the interim report should be discussed and justified. The learner should reflect on the learning experiences gained in doing the project and its relevance to on-going progress as a learner and future practising IT professional. This section should also provide a starting point for another learner to continue the work.
References and Bibliography	In addition to the interim report. References and bibliography in Harvard referencing style.
Appendices	Note: Well-documented code listings should be included in an appendix, not in the main body of the report.

A typical final report will contain 10,000 words. Word count excludes bibliography and appendices and is subject to a maximum tolerance of ±10%.

Roles and Responsibilities

The Learner

- The responsibility for the academic and industrial quality of the project is the learner's alone.
- The learner should arrange to meet with his/her supervisor at least once per week. If the learner anticipates being late or has to cancel a meeting, the learner should notify the supervisor in good time.
- Before a meeting with a supervisor, the learner must prepare an agenda.
- After each meeting with a supervisor, a learner must sign the meeting log (see Appendix 1). An email can be considered an as an electronic signature.
- All submissions must be the sole work of the learner and the learner must avoid plagiarism by acknowledging the work of others.
  In this regard, learners must be familiar with the DBS Plagiarism Policy

The Supervisor

- Should recognise that the success of a learner in his/her project depends to a large degree on the advice and guidance that a supervisor offers, especially in the early stages of the project.

- Advises on the project proposal. This involves checking that the project is realistic, manageable in size, ethically acceptable to DBS Ethics Committee and within the ability of the learner. The proposal must also have the potential to be developed into a project, which could reasonably be expected to be appropriate to the award.
- Assign a grade to the project proposal.
- The supervisor should meet with the learner at least once per week. If the supervisor anticipates being late or has to cancel a meeting the supervisor should notify the learner in good time.
- At each meeting the supervisor directs and advises on the work done and the work to be undertaken before the next meeting.
- After each meeting with a learner, a supervisor should fill in and sign the meeting log (Appendix 1). An email can be considered an as an electronic signature.
- Advise learner in preparing the interim report.
- Assess the interim report.
- Advise learner on the technical aspects of the project, but will not be involved in detailed matters such as debugging code or setting up equipment.
- Advise the learner in preparing the final report.
- Assess the final report and project product.
- Advise learner in preparing the final presentation.
- Assess the final presentation.

Supervisor-Learner Relationship

The academic and professional working relationship between learner and supervisor is an important factor in the successful completion of the project. Both learner and supervisor should foster this relationship by employing common courtesy, punctuality, conscientious work practice and mutual respect.

The Second Reader

- Assess and assign a mark to the project deliverables:
  - project proposal ○ interim report ○ final project
  - project product

The Moderator

Where marks assigned to the project deliverables by a supervisor and the second reader are significantly different, the module leader will assign a moderator to assign a third set of marks.

The module leader will take into account the three sets of marks in deriving at a final mark.

The Module Leader

- Inform learners of the acceptability or otherwise of their project proposals.
- Assign learners to supervisors.
- May refer project proposals to the DBS Ethics Committee.
- Liaise with supervisors on the progress of each learner.
- Assign second readers and moderators as required.
- Attend a representative sample of final project presentations for quality assurance purposes.
- Moderate a representative sample of projects to ensure fairness and consistency of marking across all projects.

Project Assessment

The Project Proposal

This is a mandatory component of the assessment and carries a weighting of 5% of the final project mark. This component must achieve a pass mark of 40% before a learner is allowed to start work on the project.

	Weighting
The learner's personal learning objectives.	.05
Project scope and objectives	.2
Technical specifications	.4
Project Plan	.25
References and bibliography	.1

The Interim Report

This assessment component carries a weighting of 10% of the final project mark.

	Weighting

Background and Aims: The extent to which the learner has clearly understood and stated the aims of the project. Suitability of literature review as it relates to the project with evidence of critical understanding. 0-20% Poor or irrelevant references with no evidence of critical understanding. 21-40% Adequate references but no evidence of critical understanding. 41-60% Good references with good critical understanding with some gaps. 61-80% Very good references and clear evidence of very good critical understanding with some minor gaps. 81-100% Evidence of considerable reading and original interpretation. Exceptionally coherently presented background research interleaved with learner's own comments and constructive criticisms demonstrating an excellent critical understanding.	**.15**

Specification and Design: The extent to which the specification and design is clear and meets the aims of the project. 0-20% Poor specification and design that will not meet the project aims 21-40% Either specification is not relevant or the design is not relevant. Main design decisions are described, but the justifications are not convincing. 41-60% Adequate specification and design with some misunderstandings or design flaws. The high-level structure of the product and its design are adequately presented. However, they are too brief to serve the purpose. 61-80% Very good specification and design. The high-level structure of the product and its design are clearly presented. The main design decisions are described, but some justifications are not convincing. Some design flaws that may be easily fixed. 81-100% Excellent specification and design. Exceptionally clear analysis and specification of the problem being solved. Exceptionally well presented account of the design and high-level structure of the product.	**.2**
Testing and Evaluation: The extent to which testing and evaluation of the product has been carried out. 0-20% Little or no evidence of testing and evaluation. 21-40% Testing and evaluation has many major gaps with many inconsistencies and flaws. Most of the testing and evaluation needs to be redone. 41-60% Adequate testing and evaluation with some major gaps that can be corrected. 61-80%	**.1**

Very good testing and evaluation with some minor gaps that can be corrected. 81-100% Extensive testing with close to faultless evaluation of the product.	

Progress and Future Work: A review of status of the project in terms of the proposed goals and project plan. 0-20% Poor progress with no concept of future work. 21-40% Fair progress with a good idea of work to be done. However, progress needs to be improved and greater clarity and feasibility needs to be brought into the future work plan. 41-60% Good progress with clarity and feasibility of future work plan. 61-80% Very good progress with a well thought out future work plan. 81-100% Excellent progress with an excellent well planned future work schedule. There is no doubt that the learner is working well and will achieve a high final grade.	**.2**

Report Quality: Evaluation of how well-written and well-organised the report is. 0-20% Poor standard of writing with poor organisation of the material making difficult reading. 21-40% Good standard of writing and organisation but with grammatical, spelling and citation errors. 41-60% Very good standard of writing and organisation with few grammatical, spelling and citation errors. 61-80% Very good standard of writing and organisation with good grammar, spelling and citations. With corrections is of a publishable standard. 81-100% Excellent standard of writing and organisation. The report is easily read and is of a publishable standard.	**.15**

Difficulty Level of Project: This is a measure of how substantive, challenging and difficult the project is. 0-20% Topic is not challenging and almost no innovation is required. 21-40% Topic is not very challenging but some innovation is required. 41-60% Topic is challenging and requires innovation and good design skills. 61-80% Topic is very challenging and requires innovation and very good design skills. 81-100% Topic is exceptionally challenging and difficult for this level.	**.2**

The Final Report

This assessment component carries a weighting of 20% of the final project mark.

	Weighting
Background and Aims: The extent to which the learner has clearly understood and stated the aims of the project. Suitability of literature review as it relates to the project with evidence of critical understanding. 0-20% Poor or irrelevant references with no evidence of critical understanding. 21-40% Adequate references but no evidence of critical understanding. 41-60% Good references with good critical understanding with some gaps. 61-80% Very good references and clear evidence of very good critical understanding with some minor gaps. 81-100% Evidence of considerable reading and original interpretation. Exceptionally coherently presented background research interleaved with learner's own comments and constructive criticisms demonstrating an excellent critical understanding.	**.15**

Specification and Design: The extent to which the specification and design is clear and meets the aims of the project. 0-20% Poor specification and design that will not meet the project aims. 21-40% Either specification is not relevant or the design is not relevant. Main design decisions are described, but the justifications are not convincing. 41-60% Adequate specification and design with some misunderstandings or design flaws. The high-level structure of the product and its design are adequately presented. However, they are too brief to serve the purpose. 61-80% Very good specification and design. The high-level structure of the product and its design are clearly presented. The main design decisions are described, but some justifications are not convincing. Some design flaws that may be easily fixed. 81-100% Excellent specification and design. Exceptionally clear analysis and specification of the problem being solved. Exceptionally well presented account of the design and high-level structure of the product.	**.2**
Testing and Evaluation: The extent to which testing and evaluation of the product has been carried out. 0-20% Little or no evidence of testing and evaluation. 21-40% Testing and evaluation has many major gaps with many inconsistencies and flaws. Most of the testing and evaluation needs to be redone. 41-60% Adequate testing and evaluation with some major gaps that can be corrected.	**.15**

61-80% Very good testing and evaluation with some minor gaps that can be corrected. 81-100% Extensive testing with close to faultless evaluation of the product.	
Report Quality: Evaluation of how well-written and well-organised the report is. 0-20% Poor standard of writing with poor organisation of the material making difficult reading.	**.25**
21-40% Good standard of writing and organisation but with grammatical, spelling and citation errors. 41-60% Very good standard of writing and organisation with few grammatical, spelling and citation errors. 61-80% Very good standard of writing and organisation with good grammar, spelling and citations. With corrections is of a publishable standard. 81-100% Excellent standard of writing and organisation. The report is easily read and is of a publishable standard.	

Difficulty Level of the Project: This is a measure of how substantive, challenging and difficult the project is. 0-20% Topic is not challenging and almost no innovation is required. 21-40% Topic is not very challenging but some innovation is required. 41-60% Topic is challenging and requires innovation and good design skills. 61-80% Topic is very challenging and requires innovation and very good design skills. 81-100% Topic is exceptionally challenging and difficult for this level.	**.25**

Management of Project:

This reflects how well the learner managed the project in terms of meeting agreed deadlines and contribution to the project. This assessment component carries a weighting of 5% of the final project mark.

0-20% Did not meet regularity with supervisor Did not meet project 'milestones' Did not complete agreed work in weekly meeting logs or no meeting logs Did not contribute any ideas to project Poor time management skills Showed no pro-activeness, initiative or enthusiasm 21-40% Attended some meetings with supervisor Met some of the project 'milestones'	

Completed some of the agreed work in the weekly meeting logs Contributed some ideas to the project which needed to be refined by the supervisor Good time management skills Pro-activeness, initiative and enthusiasm were lacking 41-60% Attended most meetings with supervisor Met most of the project 'milestones' Completed most of the agreed work in the weekly meeting logs Contributed some independent ideas to the project, some of which had to be refined by the supervisor Very good time management skills Showed good pro-activeness, initiative and enthusiasm 61-80% Met regularly with supervisor Met majority of the project 'milestones' Completed majority of the agreed work in the weekly meeting logs Contributed many good independent ideas to the project, few of which had to be refined by the supervisor Excellent time management skills Showed very pro-activeness, initiative and enthusiasm 81-100% Met regularly with supervisor Met all of the project 'milestones' Completed all of the agreed work in the weekly meeting logs All ideas were considered excellent by the supervisor Excellent time management skills Showed excellent pro-activeness, initiative and enthusiasm	

The Presentation

This assessment component carries a weighting of 10% of the final project mark.

	Weighting
Topic introduced clearly and at the right level	**.2**
Key points conveyed clearly and logically	**.2**
Quality of Slides	**.2**
Effective demonstration of product	**.2**

Questions answered well	**.2**

The Project Product/Artefact

This assessment component carries a weighting of 50% of the final project mark.

	Weighting
Functionality, including the level of difficulty	**.4**
User Interface	**.15**
Performance/Efficiency	**.15**
Stability	**.1**
Implementation Quality	**.2**

Project Timetable

Module week Number	
1	Begin project topic selection in consultation with supervisor.
2	Narrow down topic selection and begin draft of a project proposal
4	Finalise the proposal and submit to the module leader/supervisor.
5	Supervisor approves/disapproves project
5	Begin work on project. Arrange weekly meetings with assigned supervisor
12	Submit interim report
19	Submit first draft of the final report to project supervisor.
22	Submit project deliverables: Project product, final report
24	Presentation

Extensions

Extensions to project submission deadlines will be not be granted, other than in exceptional circumstances. To apply for an extension please go to https://students.dbs.ie/dbs-student-services/online-student-forms, follow the link to your Student Dashboard and complete the Assignment Extension.

Appendix 1

Project Meeting Log

Learner Name:

Supervisor Name:

Date: Start Time: Finish Time:

Agenda:

Project Materials Submitted:

Agreed Work for Next Meeting:

Comments:

Signatures

Supervisor: _____ Learner: _____