

University of the Free State
Department of Computer Science and Informatics

CSIS6809 & BCIS6809 Honours Project Guidelines 2022

36 credits (NQF level 8)

Table of Contents

_		_						
1.	Staff members							
2.	General Regulations							
3.	Project proposal3							
4.	Project Advisors3							
5.	Submission of final project							
6.	Presentation at Project days4							
7.	Document Layout (User- and Technical Manual)	4						
	7.1 What should be in the User Manual?							
	7.2 What should be in the Technical Manual?	5						
8.	Deliverables	6						
	8.1 Project proposal	7						
	8.2 Examples of Deliverables							
	8.2.1Literature review							
	8.2.2Use Case diagrams	7						
	8.2.3Scenarios							
	8.2.4Class Diagrams and/or Site Maps	7						
	8.2.5ER Diagram	8						
	8.2.6Motivation for the technology used	8						
	8.2.7Evaluation							
	8.3 Coding							
	8.4 Technical Manual							
	8.5 User Manual	8						
9.	Summary of deliverable submission dates	9						
App	pendix A	12						
App	pendix B	13						
	In-text documentation	13						
	Reference list							
aqA	pendix C							
	pendix D							
	pendix E							

1. Staff members

Prof Lizette de Wet – Postgraduate Programme Coordinator & Project Advisor

o Office: WWG 206

Telephone: 051–401 3705Email address: DWetL@ufs.ac.za

- Prof Liezel Nel Project Advisor
- Prof Eduan Kotzé Project Advisor
- Prof Tanya Stott Project Advisor
- Dr Wynand Nel Project Advisor
- Mr Rouxan Fouché Project Advisor
- Mr Jaco Marais Project Advisor
- Ms Tlholohelo Nkalai Project Advisor
- Prof Paul Kogeda Project Advisor
- Mr Charl Cilliers Project Advisor
- Dr Pakiso Khomokhoana Project Advisor.

2. General Regulations

- It is compulsory for students to attend the Honours Project workshop in the week following the Honours Information session.
- CSIS6809/BCIS6809 is a year module and is compulsory. If it is not successfully completed after one year the student will receive a *Fail* or an *Incomplete* (depending on the how the stipulations in this document have been met) for the module and will have to register for this module again for the following year.
- You must register for this module at the beginning of the year, since it is a year module.
- It is expected of the students to apply all the principles they were taught in undergraduate years, as well as in the modules they are doing on Honours level. Students must work on this module throughout the period for which they are registered for the module. Sub-standard work will not be accepted.
- The right of intellectual property remains with the University of the Free State.
- The student undertakes that all submissions will be his/her own work and is aware of the consequences of plagiarism, copying and fraud.

- Marks are awarded for professionalism. This means that regular appointments with the project advisor must be made and kept.
- It is the sole responsibility of the student to obtain all the necessary information about the project, project day, submission of the project and the project oral.

3. Project proposal

The student undertakes to submit a project proposal (8 - 10 pages), for the development of an application or horizontal prototype (in the case of BCIS students) of sufficient scope, via BlackBoard.

A template for MSWord will be provided.

Be specific - it is, for example, not sufficient only to say that you computerise a company's paper filing system. Think of Why, What, How, When, Who, Where, How much (scope?), which Programming Language (why *this* one?), etc. The proposal must have substance and should already include some investigation and research of similar applications, or is yours the first one (how do you know this?) in this field?

Refer to section 9 for submission dates.

If the proposal is accepted, a project advisor will be appointed.

4. Project Advisors

- It is the sole responsibility of the student to communicate with his/her project advisor on a regular basis.
- The student will ensure that all submitted work is of acceptable English standard and has preferably been proofread and edited by a language editing professional, or a person who is very proficient in the English language. The project advisor will not accept responsibility for any language editing of project submissions.
- The project advisor reserves the right to suggest changes and/or improvements on any submissions, including manuals and software developed by the student.
- The student must submit any work within the specified timeframe (refer to Section 9) before the final submission dates. The project advisor undertakes to give feedback and/or suggestions regarding the submission, but the student must take into account that the feedback can take 5 10 working days.

5. Submission of final project

- On completion of the project, it is important that the **system and documentation must be submitted to the project advisor according to the time frame in Section 9.**
- Windows applications must be installed on the demonstration computer that will be provided by the Department. Send an e-mail to the technical assistant to make an appointment.
- Electronic copies of each of the following must be submitted:
 - User Manual (pdf format)
 - Technical Manual (pdf format)
 - o Installation CD for a Windows application.
 - o CD or flash drive with source code for both Windows and web applications.

6. Presentation at Project days

- While registered for this module it is expected of a student to attend and present at all project days at least two.
- The official project days are in April and November. For 2022 the specific dates of the project days will be:
 - a. Project Day 1: Friday 8 April 2022
 - b. Project Day 2: Thursday 3 and Friday 4 November 2022
 - c. Submission date for the final application: 14 October 2022
 - d. Submission date for the final documentation: 28 October 2022.
- The student must make use of a PowerPoint presentation on a template provided by the department. The presentation must be approved by the study advisor before the project day.
- The final submission must include a complete demonstration of a working system / horizontal prototype.

7. Document Layout (User- and Technical Manual)

Take the following into consideration for all submitted documents:

- The document must be ring bound.
- One and a half spacing, with a 12 point font must be used in all documents using a sans serif font (for example, Calibri, Arial, Tahoma).
- Text must be justified.
- Margins (top, bottom, left and right): 2.5 cm
- There must not be page numbers for the following pages:
 - a. Title page
 - b. Acknowledgements
- Page numbers must be Roman numerals (i, ii, iii, iv) for the following:
 - a. Table of contents
 - b. List of figures
 - c. List of tables
 - d. List of abbreviations
 - e. Glossary.
- The remainder of the document (starting from Chapter 1) must be numbered using Arabic numerals (1, 2, 3, 4).
- The cover page will be provided by the department, as well as a project number. These are available from the departmental secretary. Ensure that you obtain these at least one week before the final submission date.
- The following must appear on the first page of each manual (see Appendix A):
 - Title of your project

- o Technical Manual / User Manual
- o "Submitted as partial requirement for the degree of BSc (Honours) or BCIS (Honours)"
- o "Department of Computer Science and Informatics"
- "Faculty of Natural and Agricultural Sciences"
- o "University of the Free State"
- Student Name and Surname
- o Student Number
- o "Project Advisor:" Title, Initials, Surname
- Month and year of submission
- The second page of your documentation must consist of the information in Appendix E.
- Include the following before the first chapter of the document:
 - Acknowledgements (optional)
 - o Table of Contents
 - List of Figures
 - List of Tables
 - List of Abbreviations (Optional)
 - o Glossary of application domain terminology
- Refer to Sections 7.1 and 7.2 for guidelines on the contents of the User- and the Technical Manual.
- Each document should include a complete list of references (refer to Appendix B for guidelines on using APA).
 - Select a specific style (APA Style / Harvard Style / etc.) and follow it consistently (this includes inline referencing).
 - o The list of references is optional for the User Manual.
- If deemed necessary, additional Appendixes can be included at the end of the document.

7.1 What should be in the User Manual?

The aim of this manual is to provide enough information to allow users to install and use the system without any training. Screen captures must be included.

Chapter 1: Introduction (General summary / global overview of your developed system)

Chapter 2: Installation procedure (including details of how website was published to CSIS server)

Chapter 3 – onwards: Complete step-by-step explanation of the system grouped by functionality.

7.2 What should be in the Technical Manual?

The aim of this manual is to provide enough information to maintenance programmers so that they can maintain your system with confidence and as easily as possible. The contents of Chapters 3 and 4 can be adjusted for each project at the discretion of the project advisor.

Chapter 1: Introduction

- 1. Introduction.
- 2. Problem Statement.
- 3. Scope of the project (Explain the complete system and highlight which section you will be developing).
- 4. Limitations of the project.
- 5. Document overview (Listing of all the chapters with a brief description of the contents).

Chapter 2: Literature review

- 1. Comparative discussion of the existing systems and available technology.
- 2. Terminology must be defined for the scope of the project.
- 3. Sufficient background must be provided for the project.
- 4. A solid foundation must be laid for the remainder of the document.
- 5. Inline references must be used throughout the chapter.

Chapter 3: Requirements and Analysis workflow

- 1. Use cases.
- 2. Use case descriptions.
- 3. Scenarios.

Chapter 4: Architectural Design

- 1. Class diagrams (Sitemap in case of Web based applications).
- 2. Gantt chart.
 - a. In the final submission, the Gantt chart should contain both the proposed dates as well as the actual dates that were achieved by the student.
- 3. Database design ER-diagram, description of ER-diagram that focuses on tables, primary keys, referential integrity, etc.
- 4. Motivation for technology used.

Chapter 5: Evaluation

- 1. Describe how the prototype was evaluated by prospective users.
- 2. Provide results of the evaluation and indicate which corrective measures were taken.

Chapter 6: Source code and Implementation

1. Code snippets of the most interesting and complex parts of your source code and an explanation thereof.

Reference list

1. A complete list of all references that were cited in the text of the document.

8. Deliverables

Throughout the year, the student will be required to submit certain deliverables. Each student and project advisor will discussed and agree on the detail of each deliverable. The deliverable dates are provided in Section 9 of this document. Marks will be given for all deliverables submitted. Late submission will be penalised as follows:

- **20% will be deducted** from the final mark of the deliverable for each day, or part thereof, that the deliverable is late.
- This deduction is applicable for the **first three days** after the submission. Thereafter, the student will **receive zero** for the deliverable.

 However, even if the deliverable is submitted late, it must be submitted by the student, to the satisfaction of the lecturer. Failure to do so will result in the deliverable being marked as incomplete.

Note that submission of the deliverable in the final documentation does not justify a submission. Each deliverable must be submitted as separate document to the project advisor for their approval. Should the student receive an incomplete for two or more deliverables through the year, then the project as a whole will be marked incomplete.

8.1 Project proposal

The project proposal will form the bases of the first chapter of your technical document and is subject to approval (as mentioned above).

Submission Date: 11 March 2022 @ 09H00 via BlackBoard as a pdf document **Projects assigned to project advisors and feedback to students:** 23 March 2022 @ 17:00

8.2 Examples of Deliverables

The deliverables will differ depending on the nature of the project. Examples of deliverables may include the following:

8.2.1 Literature review

A short literature review must be undertaken. Where applicable, the literature review must include a comparison of available systems which are similar to the system the student will be developing. Similarly, the literature review should explain and discuss any specific methodologies that will be used. Terminology should also be defined such as it pertains to the scope of the project. Furthermore, the literature review should lay the foundation for the project and provide a comprehensive background as to why the project was undertaken. Any other literature which is applicable to the project must also be included at the discretion of the student and project advisor. In conclusion, the literature review should lay a solid foundation for the remainder of the project and document.

8.2.2 Use Case diagrams

The use case diagrams must cover the extent of your project. A single all-encompassing use case diagram must be submitted. Additionally, each use case must be discussed separately with both a short and a detailed description. The use cases form part of the technical documentation.

8.2.3 Scenarios

Once the use case diagrams have been approved, scenarios must be created for the use cases. Scenarios are also part of your technical documentation.

8.2.4 Class Diagrams and/or Site Maps

A complete class diagram must be designed which will be suitable to facilitate all the required system functionality.

8.2.5 ER Diagram

Where applicable, should the system require it, a complete ER diagram must be submitted. All referential integrity, must be indicated on the ER Diagram. The ER diagram should include a description of all tables which describes their use within the system.

8.2.6 Motivation for the technology used

The student must submit a motivation for their choice of technologies they will be using during the development of their chosen application.

8.2.7 Evaluation

The student should (if applicable) submit a description of usability evaluation procedures as well as the results when the system / prototype is complete.

8.3 Coding

Regular appointments must be made with the project advisor so that progress on the project can be monitored. Coding of the application should start no later than in **April 2022** and only after the study leader has approved all the prior documentation. This gives the student approximately five months to code the application.

The student must give at least five demonstrations to their project advisor. However, additional demonstration dates may be added at the discretion of the project advisor.

Final submission of the complete working application: 14 October 2022 @ 09H00

8.4 Technical Manual

All the previous deliverables, with the feedback incorporated, and the source code must be compiled into a single technical document.

Final Submission Date: 28 October 2022 @ 09H00

8.5 User Manual

Once the system has been approved by the project advisor, the student can complete the user manual.

Final Submission Date: 28 October 2022 @ 09H00

9. Summary of deliverable submission dates

* TM = Technical Manual; UM = User Manual

Refer to table below:

2022 HONOURS:	PROJECT DELIVERY DATES
Submission Date	Deliverable
11 March 2022	Project proposal submitted
18 March 2022	Proposal Evaluation Meeting
23 March 2022	Feedback on proposals
23 March - 5 April 2022	Finalising proposal & Project Deliverables
28 March –1 April	UFS Break
6 April 2022	Project Day 1 PowerPoint Presentation to
	supervisor for feedback
8 April 2022	PROJECT DAY 1 (Proposal presentations)
22 April 2022	Updated proposal & TM Chapter 1
29 April 2022	Sign agreement on deliverables (for July & October)
6 May 2022	Project Schedule (Gantt chart)
13 May 2022	Literature Review
27 May 2022	Use cases & Descriptions
3 June 2022	Scenarios
	Predicate Day
17 June 2022	Class diagrams and/or Site maps
24 June 2022	Database Design
1 July 2022	Motivation for technology used
4 – 15 July	UFS Break
22 July 2022	Project demo 1
29 July 2022	Half-year progress report submission -
	Decision of whether student may continue
5 August 2022	Project demo 2
19 August 2022	Project Demo 3
2 September 2022	Project Demo 4

16 September 2022	Project Demo 5
30 September 2022	Submit TM v1
3 – 7 October 2022	UFS Break
14 October 2022	Submit final application
21 October 2022	Submit TM v2
	Submit UM v1
28 October 2022	Submit final TM & UM Predicate Day
Thursday & Friday	PROJECT DAY 2 (Project Assessments)
3 & 4 November 2022	

Appendix A

Register your project with Mrs. Opperman (WWG311) and use the front page provided

Title

Technical Manual / User Manual

Submitted as partial requirement for the degree of [Type degree, e.g. B.Sc. (IT) Honours]

Department of Computer Science and Informatics

Faculty of Natural and Agricultural Sciences

University of the Free State

[Type your full name and surname]

[Type your student number here]

Project Advisor: [Type project advisor's title, initials and surname here]

Co-Advisor: [Type project so-advisor's title, initials and surname here]

[Type month and year of submission here]

Appendix B

This appendix provides a quick reference guide to using the referencing style published by the American Psychological Association, known as the APA style.

In-text documentation

Citation of a reference in the text of your discussion refers the reader to the alphabetical compilation of references at the end of the thesis or article (Mouton, 2001). While reading this book you have probably noticed that there are many references scattered throughout the text. These references refer you to the list of references situated at the end of book which contains an alphabetical listing of the full publication details of the cited source.

The APA style uses the author-date format of in-line citation (Mouton, 2001).

One work by a single author

- When the author's name appears in the text, cite only the year of the publication (Mouton, 2001). For example,
 - a. Mouton (2001) suggests that ...
 - b. In a study conducted by Dillon (2001) ...
- 2. When the author's name does not appear in the text, place it in brackets together with the year of publication with a comma separating the two (Mouton, 2001). For example:
 - a. Finally, edit and rework your writing (Mouton, 2001).

One work by two or more authors

- 1. When a work has two authors the surnames of both authors must be listed when cited in brackets and when contained in the text (Mouton, 2001). For example:
 - ... can be either discrete or continuous (Berenson and Levine, 1979).
 - Redmond-Pyle and Moore (1995) point out that ...
- 2. When citing a work with 3-6 authors, list the surnames of all the authors for the first citation. When citing the source thereafter, include only the surname of the first author followed by "et al." (Mouton, 2001). For example:
 - ... analytical or an inspection method (Al-Qaimari et al., 2001).
- 3. When citing a work by more than 6 authors, all citations can be in the form of the surname of the first author, followed by "et al." (Mouton, 2001).

Works with no authors

When citing a work with no author, use the first few words of the reference list entry, which is usually the title, followed by the date (Mouton, 2001). When citing from a book or periodical italicise or underline the title of the book and when citing from an article or chapter, enclose the title in double quotation marks. For example:

- ... in the book Language Use (1991)
- on Language Use ("World Languages", 1992)

Specific parts of a source

The page number, chapter, figure, table or equation must be included in the citation when citing a specific part of the source (Mouton, 2001). For example:

• ... and rewriting what is read (Finch, 1986, p. 11)

Reference list

A **reference list** is "a list of sources that you have used in your research paper or thesis" (Mouton, 2001). For an example of a complete reference list simply see the references listed at the end of this book. The reference list should always be alphabetised according to the surname of the first author (Mouton, 2001).

Books

References to books should contain the following information (Mouton, 2001):

- Authors or editors.
- Publication date.
- Book title (italicised or underlined and with only the first word of the title, subtitle and any proper nouns should be capitalised).
- Public information such as the publisher and country of publication.

The following examples are all obtained from Mouton (2001).

Book: single author, edition other than first

Mouton, J. (1996). *Understanding social research*. Pretoria: J.L. van Schaik.

Book: two or more authors

Berdie, D.R. and Anderson, J.F. (1974). Questionnaires: design and use. Metuchen: Scarecrow.

Book: no author or editor

Merriam-Webster's collegiate dictionary (10th ed.). (1993). Springfield, MA: Merriam-Webster.

◆ A multi-volume work

Churchill, Winston, S. (1956-58). A history of the English-speaking peoples. 4 vols. New York: Dodd.

Books (edited books, anthologies, published proceedings)

The following examples are all extracted from Mouton (2001).

Edited book

Bulmer, M. and Warwick, D.P. (Eds.). (1993). *Social research in developing countries: Surveys and censuses in the Third World*. London: UCL Press.

Article or chapter in an edited book

Information to be included in the reference (Mouton, 2001):

- Author(s).
- Date of publication.
- Article title.
- Book editors.
- Book title.
- Article page numbers.
- Publication information.
- For a chapter in a book, the word "In" must be included before the book title

 Orne, M.Y. (1969). Demand characteristics and the concept of quasi-controls. In R. Rosenthal and

 R.L. Rosnow (Eds), Essentials of behavioral research: Methods and data analysis (pp. 143-179).

 New York, NY: McGraw-Hill.

References to proceedings of meetings and symposia-published proceedings

Deci, E.L. and Ryan, R.M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation* (pp. 237-188). Lincoln: University of Nebraska Press.

Reference materials (encyclopaedias, dictionaries)

The following example is extracted from Mouton (2001).

Entry in an encyclopaedia

If an entry has no by-line, begin the entry with the reference title and publication date.

Bergmann, P.G. (1993). Relativity. In *The New Encyclopedia Britannica* (Vol. 26, pp. 501-508).

Chicago: Encyclopaedia Britannica.

Periodicals (scientific journals)

The reference should include the following information (Mouton, 2001):

- Article author(s).
- Date of publication.
- Article title (only the first word of the title, subtitle and any proper nouns should be capitalised).
- Periodical title.
- · Periodical information.

The following examples are all extracted from Mouton (2001).

Article: one author

Mouton, J. (1985). Contemporary philosophies of science and the qualitative paradigm in the social sciences. *South African Journal of Sociology*, 16(3): 81-89.

Article: two authors, paginated by issues

Klimoski, R. and Palmer, S. (1993). The ADA and the hiring process in organisations. *Consulting Psychology Journal: Practice and Research*, 45(2): 10-36.

Article: three to five authors

Maas, G.J.P., De Coning, T.J. and Smit, E. v.d. M. (1999). Identifying indicators that can play a meaningful role in promoting creativity in SMEs: A South African study. *South African Journal of Business Management*, 30(2): 39-47.

Research and technical reports and dissertations

The following examples are all extracted from Mouton (2001).

References to technical and research reports

Details to be included in theses references are (Mouton, 2001):

- Report authors or editors.
- Date of publication.

- Publication title (underlined or italicised on with only the first word of the title, subtitle and any proper nouns should be capitalised).
- Publication information (publisher and country of publication).

Cummins, J. (1981). The role of primary language development in promoting educational success for language minority students. In California State Department of Education (Ed.), *Schooling and language minority students: A theoretical framework*. Evaluation, Dissemination and Assessment Center. Los Angeles: California State University.

Doctoral dissertation or thesis

Esterhuizen, L. (1999). *Methods and madness*. Unpublished master's thesis. Stellenbosch: University of Stellenbosch.

Unpublished manuscripts and publications of limited circulation

Parry, J. (1982). Popular attitudes towards Hindu religious texts. Unpublished manuscript.

Popular magazines and newspapers

The following examples are all extracted from Mouton (2001).

Newspaper articles, no author

These references should be alphabetised according to the first significant word of the article (Mouton, 2001). When citing these articles, it is permissible to use a shortened form of the title (e.g. "New Drug", 1993).

New drug appears to sharply cut risk of death from heart failure. (1993, July 15). *The Washington Post*, p. A12.

Article from a weekly magazine

References to magazines that are published daily, weekly, bi-weekly or monthly need not contain the volume or issue numbers (Mouton, 2001).

For monthly magazines, supply the following in the reference (Mouton, 2001):

 The month and the year; or day, month and year for magazines published more frequently.

When citing an article that has not been printed on consecutive pages, you can provide only the first page number of the article, followed by a plus sign, for example, 45+.

Bazell, R. (1993). Science and society: Growth industry. New Republic, 15 March 1993: 13-14.

Article from a daily newspaper

Manegold, Catherine, S. (1994). Becoming a Land of the Smoke-free, Ban by Ban. *New York Times*, 22 March 1994, late ed.: A1+.

An editorial

Zuckerman, M.B. (1993). Welcome to communicopia. Editorial. *US News and World Report*, 1 November 1993: 116.

A review

Rea, P.M. (1984). [Review of the book "Issues in Language Testing" by Charles Alderson and Arthur Hughes, Eds]. *Language Learning*, 34(3): 175-188.

Electronic sources

If there is an identical print form of the material, then it is preferably that you cite the print form and not the electronic form (Mouton, 2001). Otherwise, include the following information for the reference of the electronic material (Mouton, 2001):

- Article author(s).
- Date of publication.
- Article title (only the first word of the title, subtitle and any proper nouns should be capitalised).
- Periodical title.
- Type of media.
- Availability (Specify path).

The following examples are all extracted from Mouton (2001).

CDs

Santayana, G. (1956). The poetry of barbarism: Essays in literary criticism of George Santayana, pp. 149-178. ([Discovering Authors CD-ROM 1996.] Detroit, MI: Gale Research [Producer and Distributor].)

Online databases

The educational directory [Online]. (1992). Available Knowledge Index File: The Educational Directory (EDUC6).

Article on a World Wide Web page

Sleek, S. (1995, July). Poor attitudes toward money start early, but they can change. *APA Monitor*, pp. 1, 33 [Newspaper, selected stories online]. Retrieved January 25 1998 from the World Wide Web: http://www.apa.org/monitor/peacea.html.

World Wide Web page

"Schistosomiasis in US Peace Corps Volunteers – Malawi, 1992." MMWR: Morbidity and Mortality Weekly Report, 30 July 1993: 565-570. Centers for Disease Control and Prevention. 26 January 1996. http://www.cdc.gov/epo/mmwr/ mmwr.html.

Information from CD

United States Department of State. (1992). *Industrial outlook for petroleum and natural gas*. National Trade Data Bank. CD-ROM. US Dept. of Commerce.

Fieldwork sources

The following example is extracted from Mouton (2001).

Ravat, E. (2000). [Interview with Thabo Mbeki]. Pretoria. 5 April 2000.

Multimedia sources (videos, films)

The following examples are all extracted from Mouton (2001).

A film

In citing a film, give the title, the director, the distributor and the year. You should also include any other credits that are relevant to your discussion of the film in your citation (Mouton, 2001). A Room With a View. By E.M. Forster. Adapt. Ruth Prawer Jhabvala. Dir. James Ivory. Prod. Ismail Merchant. Perf. Maggie Smith, Denholm Eliot, Helena Bonham Carter and Daniel Day-Lewis. Cinecom Intl. Films, 1985.

A film on video cassette

Rashomon. Dir. Akira Kurosawa. 1950. Video cassette. Embassy, 1986.

Other

The following examples are all extracted from Mouton (2001).

Unpublished paper presented at a meeting

Mouton, J. (1998). Between adversaries and allies: The notion of strategic science in post-apartheid South Africa. Paper presented at a seminar on "Science and Society in South Africa", University of Sussex, UK.

Personal communications

Memos, interviews, lectures, letters and e-mails are all forms of personal communication (Mouton, 2001). Although it is perfectly permissible to cite these as references in your text they should not be included in the reference list (Mouton, 2001). Instead they are cited within the text using the name and surname of the communicator together with as exact a date as possible (Mouton, 2001).

- W.U. Borst (personal communication, 7 April 1997) said that these are ...
- ... (W.U. Borst, personal communication, 7 April 1997)

Publications with no date

If no date can be ascertained for the publication, use "nd" to indicate "no date" where the date would normally appear both in the citation and the reference list. For example:

Kemp, C.J. nd. Notes for mathematical statistics. University of the Free State, Bloemfontein, Republic of South Africa.

Multiple sources by the same author in the same year

When more than one publication by the same author and in the same year is cited, then each date is appended with a unique lowercase alphabetic character, starting with "a", followed by "b" etc. For example:

- 1. Nielsen, J. (2001a). Usability metrics. Alertbox, January, 2001. Retrieved 27 March 2006 from the World Wide Web: http://www.useit.com/alertbox/ 20010121.html.
- Nielsen, J. (2001b). Success rate: The simplest usability metric. Alertbox, February, 2001.
 Retrieved 9 June 2006 from the World Wide Web: http://www.useit.com/alertbox/20010218.html.

Secondary sources

Although secondary sources are permissible they should be avoided as far as possible (Day, 1989). Always try and locate the primary source, read it, summarise it in your own words and cite it directly. However, should the circumstance arise where the primary source cannot be obtained you must cite it as a secondary source and not a primary source. When citing a secondary source, you only list the source you have read (i.e. the secondary source) in your reference list (Mouton, 2001). The citation in the text must then be completed as follows:

• ... between these variables (Mouton and Marais, 1996 as cited in Lues and Lategan, 2006).

Appendix C

Example of Framework for the Evaluation of Honours Projects

CSIS6809

	Student number:					
Item	Student name:					
1.	System Compulsory: Software Optional: Hardware component	Weight	Competency (0-4)	Student mark	EXPECTED DELIVERABLES / OUTCOMES	EVALUATION 0: Unacceptable/Non-existent; 1: Not yet competent; 2: Mostly competent; 3: Competent; 4: Highly competent
1.1	- Usability	7	4	7.00	Screen layout, ease of use, readability, use of correct controls, read values from a DB instead of asking user to enter free text, feedback,	O: Cluttered, unusable; 1: Usable only with extensive training or assistance; 2: Generally usable with some potential difficulties; 3: Generally usable; 4: Usable plus help facility, agents, etc. Consider: - Effectiveness (Does it work?), e.g. intuitive, correct controls used, possibility of user errors limited, logical process flow, readability - Efficiency (Is it fast/easy to use?), e.g. intnumber of steps to complete a task, not cumbersome.
1.2	- Complexity	4	4	4.00	It must be readily apparent that the project was not designed and developed by an undergraduate student.	0: First year level; 1: Second year level; 2: Third year level; 3: OK for hons; 4: Better than expected. Consider: Originality and ingenuity in approach
1.3	- Scope	4	3	3.00	The focus should be on depth rather than scale. i.e. development of complete, working, well-designed and polished applications rather than large, clunky systems with barely working functionality.	0: Not at all enough; 1: Very limited; 2: Limited; 3: OK; 4: More than expected
1.4	- Robustness	4	3	3.00	The system should not fail for any test case.	0: Does not run at all - don't allow to submit. 1: Program breaks frequently; many unhandled errors; 2: Many errors but all handled; 3: Few errors, all handled well; 4: No errors

						Honours Project Guidelines
1.5	- Installation / Publication	3	4	3.00	If applicable - provide software in a format that a user can install on a client machine publish on web server	O: No runtime version available for evaluation 1: Runtime version available only on student computer or in the presence of the student 2: Runtime version available after some struggle 3: Runtime readily available - Installation somewhat cumbersome 4: Runtime readily available - Installation quick and easy
1.6	- Code	10	3	7.50	Implement solution in an effective and correct manner (best practices, good choice of algorithms and data types).	Change weight to 0 if not applicable. 0: Very bad (reject submission); 1: Very bad (allow submission); 2: Salvageable; 3: OK (here and there minor aspects that can be improved); 4: Excellent - adheres to best practices in all respects. Consider: - Adhere to good practices, e.g. conventions, readability, efficient, no hard coding, no duplication, etc. - Database, e.g. use of stored procedures instead of embedded SQL, optimalisation of queries
1.7	System adheres to specifications and design (functionality)	8	3	6.00		O: Not at all; 1: To a limited extent; 2: Mostly; 3: Completely; 4: Agile development. Specs, design and implementation iteratively revisited to ensure consistency. Consider: - Menu layout and functionality must facilitate all use cases - Classes in code must resemble class diagram - Database according to ERD
1.8	- Other (please			0.00		buttabase assoranty to End
	specify)			0.00		
				0.00		
	Total: System	40		33.5	83.75%	
2.	Technical manual	Weight		Mark	Document the developed solution in detail using accepted software design components and terminology (use of communication diagrams, use cases, scenarios, state	

					and component	nonours rroject duidennes
2.1	- Project proposal	3	3	2.25	diagrams etc.) Develop and submit a project proposal according to the prescribed template and in time. Address the following aspects: - What is the purpose of the system? - Choice of technologies - What places the project at a higher level than undergraduate knowledge? - Planning (e.g. Gantt chart with deliverables and deadlines)	0: Unacceptable; 1: Lacking in many areas; 2: Mostly according to template; 3: According to template; 4: More than expected Consider: - Clear problem statement - Awareness of related work, importance / relevance, limitations
2.2	- Literature review and/or Requirements analysis	5	4	5.00	Literature review: Comprehensive survey of similar / relevant existing systems. Requirements analysis: Examine real world systems and identify a problem. Analyse identified problem for requirements (existing software needs to be accounted for). Develop use cases and scenarios.	0: Not done or exceptionally bad; 1: Limited or bad; 2: Could have done a bit more/better; 3: Acceptable with only minor problems; 4: Exceptional Consider: - Relevance, quality, up to date sources - Look for possibilities of plagiarism - Analysis must be appropriate to produce reasonable design - Appropriate analysis to produce reasonable design - System is well justified (will fulfil what is expected to be proved)
2.3	- Specifications	5	3	3.75	Use cases, scenarios, PERT diagram, story board, etc.	0: Non-existent; 1: Very limited; 2: Limited; 3: OK; 4: More than expected

2.4	- Design	6	3	4.50	Develop state charts, sequence diagrams, communication diagrams, PERT diagram, etc. Design a robust and efficient software architecture to address the problem (extensible, flexible). Circuit diagram, state chart diagram, class diagram, ERD, etc.	0: No design; 1: Bad or limited design; 2: Complete minimum design set but with errors; 3: Complete minimum design set and correct; 4: As for 3 plus extra designs. Consider: - System well structured - Database in 3NF
2.5	- Motivation for technology	1	4	1.00	Select appropriate technologies and motivate properly.	0: No tools used (no submission); 1: Irrelevant tools used (no submission); 2: Less than optimum tools used; 3: Optimum but standard tools used; 4: Used special tools that are not standard and had to be learned. Consider: Tools/Languages are relevant and applicable
2.6	- Presentation of code	2	2	1.00	implementation of the solution (this includes use of data structures and algorithms where applicable)	O: No code fragments; 1: Few fragments or enough fragments but no annotations; 2: Enough fragments with limited annotations; 3: Enough fragments with satisfactory annotations; 4: Large pieces of code that are well annotated.
2.7	- Functioning and test results	7	3	5.25	- Evaluate system using accepted software engineering principles and report results (demonstrate that program works as it should) Evaluate the final system by testing it according to established software engineering principles. Test cases need to be established, use black-box	Possibility 1: Measure of completeness based on specifications or proposal. 0: No functionality/nothing works; 1: Very limited adherence to specs/proposal; 2: Most but not all requirements addressed; 3: All initial requirements addressed; 4: As for 3 + additional functionality. Possibility 2: 0: No testing done; 1: Limited test cases, limited results; 2: Some test cases but not representative, some test results available; 3: Representative test cases with results; 4: Very thorough testing, including stress testing with results. Consider: - System testing clearly presented and appropriate - Insight in the assessment of the system capabilities - System placed in context and related

Honours Project Guidelines testing, runtime to other comparable systems testing, etc. It - Understanding shown of the system is critical to context by suggesting appropriate show the further extensions correctness of - General achievement of the work the system. - Compare and contrast the final system to existing solutions. - Compare and contrast the final system with requirements, specifications and design. 2.8 - Presentation 2.8.1 - TOC, TOT, 1 4 1.00 0: Non-existent; 1: Done but limited; 2: Provide TOF Done with small omissions; complete tables 3: Complete without sub-sub-sections; of contents, figures and 4:Complete, including sub-sub-entries tables. Check consistency with content. 2.8.2 2 3 - Logical 1.50 Introductions 1: Incoherent, very bad, not presentation, and summaries salvageable; 2: Salvageable / Could sequence, etc. per chapter, have done a bit more/better; links with 3: Acceptable with only minor previous/next problems; 4: Exceptional / Special chapters, order attention to detail and ample cross of content. references. Exceptionally well structured with focused and coherent paragraphs, good flow between sections. Consider: - Linking sentences to previous and following chapters - Introductions and summaries are applied consistently in all chapters - Introduction provides sufficient overview of relevant chapter - Summaries provide overview of important concepts covered in the relevant chapter 2.8.3 - Reference 1 4 1.00 The reference 0: Non-existent; 1: Incomplete (many list list must be omissions); 2: Incomplete (few complete, omissions); follow an 3: Complete; 4: Meticulously correct accepted and Consider: consistent - Cross ref with literature section standard and - Correct citation methods (APA or must match Harvard) citations in the document.

e a bit ecial bles Bad iculously
ecial ables
ecial ables 2: Bad
ibles 2: Bad
2: Bad
2: Bad
2: Bad
iculously
or
/or
ptionally
with
make 0 if
mited; 2:
cu, 2.
sections;
-entries
r i

3.3.2	- Logical presentation, sequence, etc.	m	3	2.25	Introductions and summaries per chapter, links with previous/next chapters,order of content.	1: Incoherent, very bad, not salvageable; 2: Salvageable / Could have done a bit more/better; 3: Acceptable with only minor problems; 4: Exceptional / Special attention to detail and ample cross references. Exceptionally well structured with focused and coherent paragraphs, good flow between sections. Consider: - Linking sentences to previous and following chapters - Introductions and summaries are applied consistently in all chapters - Introduction provides sufficient overview of relevant chapter - Summaries provide overview of important concepts covered in the relevant chapter
3.3.3	- Complete explanation of system	7	3	5.25		0: Non-existent; 1: Done but limited; 2: Done with small omissions; 3: Complete; 4:Complete with attention to small details
3.3.4	- Finishing	1	4	1.00	Pay attention to: Layout, cover sheet, binding, page numbers, no white spaces, justification, headings and captions, etc.	1: Very bad, not salvageable; 2: Salvageable / Could have done a bit more/better; 3: Acceptable with only minor problems; 4: Exceptional / Special attention to detail Consider: - Use of diagrams / figures / tables - Physical appearance
3.3.5	- Language	1	3	0.75	Check grammar and spelling. Apply formal academic writing style. Be concise but complete. The art of writing lies in the ability to say as much as possible in as few words as possible.	1: Very bad, not salvageable; 2: Salvageable; 3: OK; 4: Meticulously correct Consider: - Typo's & colloquialisms - Grammatically correct (but taking into account mother tongue), coherent and understandable
3.4	Other (please specify)			0.00		
3.4.1				0.00		
3.4.2				0.00		
	Total: User manual	15		12	80.00%	
4.	Oral presentation	5	3	3.75	Present the system before an audience. Use	Consider: - Media, aids used - Coverage (should include problem statement,

5.	Professionalism	5	4	5.00	presentation tools to explain the need for the system and decisions to solve. Present brief live demo of the system. You must be able to provide a complete overview of the system and the entire development process in 15 minutes. Make appointments and visit your study leader regularly. Provide inputs during the discussions, take initiative, listen to advice and adhere to it.	background/need/literature, design, coding example and system demo.) - Conciseness, Clarity, Logical well-reasoned arguments, Logical flow between sections 0: Did not pitch (fail module); 1: Very bad/incoherent/incomplete coverage; 2: OK with some occurrences illogical or wrong; 3: OK; 4: Exceptional O: Never seen; 1: Seldom seen; 2: Regular visits but little implementation of advice; 3: Regular scheduled visits with feedback implemented promptly and according to agreement; 4: Weekly appointments strictly adhered to and continuous momentum through the year.
6.	Research article (Bonus)					Abstract or poster submitted: 5 Presentation/poster presented: 6 Publishable for peer-reviewed conference: 7 Accepted in peer review conference: 8 Publishable as journal paper: 9 Accepted as journal paper: 10
	Total: Project	100		82		

BCIS6809

	Student number:					
Item	Student name:					
1.	System Compulsory: Software Optional: Hardware component	Weight	Competency (0-4)	Student mark	EXPECTED DELIVERABLES / OUTCOMES	EVALUATION 0: Unacceptable/Non-existent; 1: Not yet competent; 2: Mostly competent; 3: Competent; 4: Highly competent
1.1	- Usability	4	3	3.00	Screen layout, ease of use, readability, use of correct controls, read values from a DB instead of asking user to enter free text, feedback,	O: Cluttered, unusable; 1: Usable only with extensive training or assistance; 2: Generally usable with some potential difficulties; 3: Generally usable; 4: Usable plus help facility, agents, etc. Consider: - Effectiveness (Does it work?), e.g. intuitive, correct controls used, possibility of user errors limited, logical process flow, readability - Efficiency (Is it fast/easy to use?), e.g. intnumber of steps to complete a task, not cumbersome.
1.2	- Complexity	6	3	4.50	It must be readily apparent that the project was not designed and developed by an undergraduate student.	0: First year level; 1: Second year level; 2: Third year level; 3: OK for hons; 4: Better than expected. Consider: Originality and ingenuity in approach
1.3	- Scope	4	3	3.00	The focus should be on depth rather than scale. i.e. development of complete, working, well-designed and polished applications rather than large, clunky systems with barely working functionality.	0: Not at all enough; 1: Very limited; 2: Limited; 3: OK; 4: More than expected
1.4	- Robustness	0		0.00	The system should not fail for any test case. (this is not relevant)	0: Does not run at all - don't allow to submit. 1: Program breaks frequently; many unhandled errors; 2: Many errors but all handled; 3: Few errors, all handled well; 4: No errors

						Honours Project Guidelines
1.5	- Installation / Publication	0		0.00	(this is not relevant) If applicable - provide software in a format that a user can install on a client machine publish on web server	O: No runtime version available for evaluation 1: Runtime version available only on student computer or in the presence of the student 2: Runtime version available after some struggle 3: Runtime readily available - Installation somewhat cumbersome 4: Runtime readily available - Installation quick and easy Change weight to 0 if not applicable.
1.6	- System evaluation	8	2.5	5.00	Implement solution in an effective and correct manner (best practices, GUI, ease of use, addressing the requirements).	0: Very bad (reject submission); 1: Very bad (allow submission); 2: Salvageable; 3: OK (here and there minor aspects that can be improved); 4: Excellent - adheres to best practices in all respects. Consider: - Adhere to good practices, e.g. conventions, readability, efficient, no hard coding, no duplication, etc. - Database, e.g. use of stored procedures instead of embedded SQL, optimalisation of queries
1.7	System adheres to specifications and design (functionality)	8	2.5	5.00	Missing a business process map of the existing system and then the new proposed system.	O: Not at all; 1: To a limited extent; 2: Mostly; 3: Completely; 4: Agile development. Specs, design and implementation iteratively revisited to ensure consistency. Consider: - Menu layout and functionality must facilitate all use cases - Classes in code must resemble class diagram - Database according to ERD
1.8	- Other (please			0.00		- Database according to END
	specify)			0.00		
				0.00		
	Total: System	30		20.5		
2.	Technical manual	Weight		Mark	Document the developed solution in detail using accepted software design components and terminology (use of communication diagrams, use cases, scenarios, state and	

					1	l
					component	
					diagrams etc.)	
2.1	- Project proposal	3	2	1.50		0: Unacceptable; 1: Lacking in many areas; 2: Mostly according to template; 3: According to template; 4: More than expected
						Consider: - Clear problem statement - Awareness of related work, importance / relevance, limitations
2.2	- Literature review	8	2	4.00	This is important. Need to show critical reflection on how the ideal system should look and work like compared to other solutions.	O: Not done or exceptionally bad; 1: Limited or bad; 2: Could have done a bit more/better; 3: Acceptable with only minor problems; 4: Exceptional Consider: - Relevance, quality, up to date sources - Look for possibilities of plagiarism - Analysis must be appropriate to produce reasonable design - Appropriate analysis to produce reasonable design - System is well justified (will fulfil what is expected to be proved)
2.3	Requirements analysis and use cases	6	3	4.50		0: Non-existent; 1: Very limited; 2: Limited; 3: OK; 4: More than expected
	Sequence diagrams	5	3	3.75	This is important. Need to demonstrate the flow of controls.	0: Non-existent; 1: Very limited; 2: Limited; 3: OK; 4: More than expected
2.4	- Design	6	3	4.50	Focus on class diagrams and sitemap - is the design appropriate	O: No design; 1: Bad or limited design; 2: Complete minimum design set but with errors; 3: Complete minimum design set and correct; 4: As for 3 plus extra designs. Consider: - System well structured - Database in 3NF
2.5	- Motivation for technology	1	2	0.50		O: No tools used (no submission); 1: Irrelevant tools used (no submission); 2: Less than optimum tools used; 3: Optimum but standard tools used; 4: Used special tools that are not standard and had to be learned. Consider: Tools/Languages are relevant and applicable
2.6	- Business Process Mapping	3	0	0.00	Not done - perhaps we can consider lifting the weight on this in the future.	O: No code fragments; 1: Few fragments or enough fragments but no annotations; 2: Enough fragments with limited annotations; 3: Enough fragments with satisfactory annotations;

					4: Large pieces of code that are well
					annotated.
2.7	- Functioning	7	2.5	4.38	Possibility 1: Measure of completeness
	and test results				based on specifications or proposal.
					0: No functionality/nothing works; 1:
					Very limited adherence to
					specs/proposal; 2: Most but not all
					requirements addressed; 3: All initial
					requirements addressed; 4: As for 3 +
					additional functionality.
					Possibility 2:
					0: No testing done; 1: Limited test
					cases, limited results; 2: Some test
					cases but not representative, some test
					results available; 3: Representative test
					cases with results; 4: Very thorough
					testing, including stress testing with
					results.
					Consider:
					- System testing clearly presented and
					appropriate - Insight in the assessment of the
					system capabilities
					- System placed in context and related
					to other comparable systems
					- Understanding shown of the system
					context by suggesting appropriate
					further extensions
					- General achievement of the work
2.8	- Presentation				
2.8.1	- TOC, TOT,	1	2	0.50	0: Non-existent; 1: Done but limited; 2:
	TOF				Done with small omissions;
					3: Complete without sub-sub-sections;
					4:Complete, including sub-sub-entries
2.8.2	- Logical	2	2	1.00	1: Incoherent, very bad, not
	presentation,				salvageable; 2: Salvageable / Could
	sequence, etc.				have done a bit more/better;
					3: Acceptable with only minor
					problems; 4: Exceptional / Special
					attention to detail and ample cross
					references. Exceptionally well
					structured with focused and coherent paragraphs, good flow between
					sections.
					Consider:
					- Linking sentences to previous and
					following chapters
					- Introductions and summaries are
					applied consistently in all chapters
					- Introduction provides sufficient
					overview of relevant chapter
					- Summaries provide overview of
	i				1
					important concepts covered in the
					relevant chapter

					Honours Project Guidelines
2.8.3	- Reference list	1	2	0.50	0: Non-existent; 1: Incomplete (many omissions); 2: Incomplete (few omissions); 3: Complete; 4: Meticulously correct Consider: - Cross ref with literature section - Correct citation methods (APA or Harvard)
2.8.4	- Finishing	1	2	0.50	1: Very bad, not salvageable; 2: Salvageable / Could have done a bit more/better; 3: Acceptable with only minor problems; 4: Exceptional / Special attention to detail Consider: - Use of diagrams / figures / tables - Physical appearance
2.8.5	- Language	1	2	0.50	1: Very bad, not salvageable; 2: Bad but salvageable; 3: OK; 4: Meticulously correct
2.9	 Other (please specify) 			0.00	
2.9.1				0.00	
2.9.2				0.00	
	Total: Technical manual	45		26.125	
2	Hear manual	Moight		Morle	
3.	User manual	Weight		Mark	
2.1	Introduction	1	2	0.50	
3.1	- Introduction - Installation	1	2	0.50	0: Non-existent: 1: Incomplete or
3.2	- Installation instructions	1	2 2	0.50 0.50	0: Non-existent; 1: Incomplete or unclear; 2: Few omissions and/or minor ambiguities; 3: Complete and clear; 4: Exceptionally clear and easy to follow. Consider: Use of screen prints with annotations Consider to reduce weight or make 0 if published on a web server
3.2	- Installation instructions	1	2	0.50	unclear; 2: Few omissions and/or minor ambiguities; 3: Complete and clear; 4: Exceptionally clear and easy to follow. Consider: Use of screen prints with annotations Consider to reduce weight or make 0 if published on a web server
3.2	- Installation instructions				unclear; 2: Few omissions and/or minor ambiguities; 3: Complete and clear; 4: Exceptionally clear and easy to follow. Consider: Use of screen prints with annotations Consider to reduce weight or make 0 if

					Honours Project Guidelines
					- Introduction provides sufficient
					overview of relevant chapter
					- Summaries provide overview of
					important concepts covered in the
					relevant chapter
3.3.3	- Complete	7	2.5	4.38	0: Non-existent; 1: Done but limited; 2:
3.3.3	explanation of	,	2.3	4.50	Done with small omissions;
	system				3: Complete; 4:Complete with attention
					to small details
3.3.4	- Finishing	1	2	0.50	1: Very bad, not salvageable; 2:
	. 0				Salvageable / Could have done a bit
					more/better;
					3: Acceptable with only minor
					problems; 4: Exceptional / Special
					attention to detail
					Consider:
					- Use of diagrams / figures / tables
					- Physical appearance
3.3.5	- Language	1	2	0.50	1: Very bad, not salvageable; 2:
					Salvageable; 3: OK; 4: Meticulously
					correct Consider:
					- Typo's & colloquialisms
					- Grammatically correct (but taking into
					account mother tongue), coherent and
					understandable
3.4	- Other (please			0.00	
	specify)				
3.4.1				0.00	
3.4.2				0.00	
	Total: User	15		9.375	
	manual				
4	Ovel	-		F 00	Consider
4.	Oral	5	4	5.00	Consider: - Media, aids used
	presentation				- Iviedia, alds used - Coverage (should include problem
					statement,
					background/need/literature, design,
					coding example and system demo.)
					- Conciseness, Clarity, Logical well-
					reasoned arguments, Logical flow
					between sections
					0: Did not pitch (fail module); 1: Very
					bad/incoherent/incomplete coverage;
					2: OK with some occurrences illogical or
					wrong; 3: OK; 4: Exceptional
5.	Professionalism	5	4	5.00	0: Never seen; 1: Seldom seen; 2:
					Regular visits but little implementation
					of advice; 3: Regular scheduled visits
					with feedback implemented promptly
					and according to agreement; 4: Weekly
					appointments strictly adhered to and

				Honours Project Guidelines continuous momentum through the year.
6.	Research article (Bonus)			Abstract or poster submitted: 5 Presentation/poster presented: 6 Publishable for peer-reviewed conference: 7 Accepted in peer review conference: 8 Publishable as journal paper: 9 Accepted as journal paper: 10

66

Total: Project

100

Appendix D					
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATICS					
Module Code: CSIS6809/BCIS6809 Student Nr:					
Surname First name:					
Given names in full:					
E-mail address:					
Address during semester:					
Tel: (w) (h) (c)					
Degree (e.g. B.Sc. Hons.):					
I have received the Honours Project Guidelines and have taken note of its contents. Furthermore, I understand the contents of this document and agree to abide by the regulations as stipulated herein.					
Signature: Date:					

Name of system

BCIS6809 / CSIS6809 HONOURS PROJECT (choose BC/S6809 or CS/S6809)

Technical Manual (or User Manual)

Submitted as partial requirement for the degree of BCIS / CSIS Honours (*choose* either BCIS or CSIS)

Department of Computer Science and Informatics
Faculty of Natural and Agricultural Sciences
University of the Free State

Your name
Your student number

Project Advisor: *Name of your supervisor*Co-Advisor: *Name of your co-supervisor*

November 2022