

COMP1010
College of Engineering, Science and Environment
The University of Newcastle

Assessment 1
Instructions and Marking Sheet for

REPORT and POSTER

Due Date: Monday of Week 7, 8:00 AM – submit via CANVAS

Assessment 1 is based on the production of a Report and a Poster describing the main findings and which summarises the content for your report. Both will be delivered together. Details about submission via CANVAS/Turnitin *will be discussed in Workshops*.

Marking is expected to take at least 10 *working days* (i.e. **at least two weeks**). Feedback will be provided via CANVAS.

The report will contain a brief review of research works in a *Knowledge Area* of interest (including a short literature review). The report will look at works at the intersection of the *Knowledge Area* and a chosen topic (available choices are listed later in this document).

The report will be prepared using the document processing system called LaTeX and using Times New Roman font (12 pt), **single spaced** with margins that should not exceed 1 cm. The length of the report should be 10 pages excluding references and excluding your title page (you will lose marks if it is not *exactly* that length). All references included in the report should be properly cited and/or discussed in the text. Note: these requirements are what is normally applied to an article submitted to a conference/workshop, and generally you need to comply with some length and style formatting.

It is good practice for the report to have two files, including the so-called **.tex** file (containing the text of the report) and a separate **.bib** file (containing the referenced work cited in BiBTeX format). You can use Overleaf to work collaboratively (or alternatively, other editor(s) that would allow you to work as a team). As discussed in Week 1, both DBLP and Web of Science and give you access to publications (online, or coming via the university Library), and you can handily have **.bib** entries (which you can compose into a single file) that can be used to cite the reference in question.

An important University resource for writing reports and referencing is offered through InfoSkills (<https://downloads.newcastle.edu.au/library/tutorials/infoskills/>). Please visit it and learn, it will be very helpful for this and future University assessments.

As said before, two important sources of information to use are:

Web of Science
DBLP The Computer Science Bibliography

(<https://www.webofknowledge.com/>).
(<https://dblp.uni-trier.de/>).

Papers that you can find using these two databases are generally available to students through the University library. They are manually curated and annotated, and together they contain millions of papers in the area of ICT. They also provide references in the BibTeX format. They can probably provide all you need in terms of sources of information to identify articles to produce a report. You can also use other sources, like Google Scholar, although the references in the .BibTeX format provided by Google Scholar are not optimal and we discourage their use. Whenever you use a reference, try to make sure that the .BibTeX entry is complete. Of course, there are exceptions, but both the Report and the Poster should avoid using references from URL sites available on the Internet. Whenever possible, restrict your literature search to either textbooks, and published material in conferences or in academic journals.

You will deliver two separate .pdf files (one for the report and one for the poster), and at least two .tex and .bib files, one set for the Report and one set for the Poster, and other files that may have been used (e.g. .jpg, for images, etc.). The files will be uploaded in CANVAS by **four** different assessments' links:

1. Signed Code of Conduct PDF submission
2. Report PDF submission
3. Poster PDF submission
4. LaTeX files: All files that produced the .pdf documents, so the compressed .zip file (only one) will including all files: .tex, .bib, images and **a group cover sheet** for the team members. Please ask your demonstrator if you require any help compressing files.

Deciding on a Project Subject

The first task you have as a group is to decide on the topic of your report. We give plenty of options for that so that you can follow your interest, but there are some rules to follow.

First, refer to the Computing Topics discussed during the first two weeks of lectures and contained in the report available from:

<https://www.acm.org/binaries/content/assets/education/curricula-recommendations/cc2005-march06final.pdf>

Check Table 3.1 of that report: "Comparative weight of computing topics across the five kinds of degree programs". Then, identify one *Knowledge Area* in Table 3.1 that has a relatively high weight in one or two of the degree programs listed there, but less weight in the other four or three programs.

With that *Knowledge Area* in mind, use the databases cited above to identify manuscripts that are in that area and that also have some intersection with one of the *Topics* from the list below:

- a) Development of *specific hardware* (this is an option that might be of interest to those coming from Computer Engineering or Electrical Engineering Programs),

- b) Development of *specialized software systems* (this is an option that might be of interest to those coming from Software Engineering Programs),
- c) The role of *modelling* in that *Knowledge Area* (this is an option that might be of interest to those coming Bachelor of IT and Software Engineering Programs),
- d) The role of *discrete applied mathematics* and logic (i.e. one of this list: graphs, set theory, propositional and/or first-order logic, etc.) to address the needs of that *Knowledge Area* (this is an option of interest for those that come from programs such as Bachelor of Computer Science, Bachelor of Mathematics, etc.),
- e) Explain ethical issues arising the introduction of computing based solutions in society coming from that *Knowledge Area* (this is an area of wide interest, regardless of the Bachelor/Program you may be enrolled in).

By the end of Week 3, you need to have decided on the combination of *Knowledge Area* and topic your group will be working on and have told the demonstrator in your workshop (week 3). The combination of *Knowledge Area* and *Topic* will be unique to your group. Act fast and secure an interesting combination for your group as, once it is assigned to a group, that combination will not be assigned to any other group in the course. You need to communicate your decision to the demonstrator of the Workshop who can then “tick it off” so it will not be used by anybody else in the same workshop under his/her lead.

What can be a possible theme for a project?

We provide a list of possible projects in the Appendix 1, some comments are also included. We have not seen much activity in areas related to topics like “*Whistleblowers*” (or something linking the moral and legal problems related to computing practice), “*Ethics and Data Mining*” (e.g. problems involving use and abuse of new computing technologies), “*Ethics and Artificial Intelligence*”, “*Computing and the Law*”, etc. Have a look at the titles from last year to get inspired and perhaps bring something original.

Report Organization and Other Formalities

All reports must include

- Title page (include the title, authors, student numbers, etc.)
- Abstract
- A mentioning of the *Knowledge Area* and *Topic* that you are addressing
- Introduction
- Conclusions
- Acknowledgements (include people, lecturers or peers that have helped)
- References

- References to any other supporting source of information not included in the report (sometimes only included in a short Appendix or in footnotes)

The ‘**Title**’ should be specific, descriptive, concise, and comprehensible to readers outside the field. It should not exceed 250 characters.

The ‘**Abstract**’ should not be longer than 300 words, should indicate the *Knowledge Area* and *Topic*, and should describe some of the major findings.

The ‘**Introduction**’ should put the work into the context of Computing and should help readers outside the field understand why the combination of *Knowledge Area* and *Topic* is important for ICT. A brief review of the key literature should be included. Note if there are some specific conferences, journals, or research activity in the *Knowledge Area* and the associated *Topic* you studied.

A ‘**Conclusions**’ section at the end should wrap up the report, indicating what was found and its relevance.

No more than **four** small figures/tables are allowed. All of them should have captions and be essential for inclusion. If they are not essential, it is good practice not to include them.

References: You should restrict yourselves only to citing published or accepted manuscripts (either in journals or in conferences). You can also cite manuscripts on preprint servers, provided the manuscript has a citable DOI or arXiv URLs.

Things you should not cite as a reference include:

- Unavailable and unpublished work, including manuscripts that have been submitted but not yet accepted.
- Personal communications (these should be supported by a letter from the relevant authors but not included in the reference list).
- URLs or articles you may find on the Internet but not linked to a journal/magazine and that they are not likely to be peer-reviewed. Exceptions may include those in arXiv (<https://arxiv.org/>) or Technical Reports from other universities. Note that you may need to create a special .bib entry for them and not cite them as a footnote.

We will maintain a FAQ on CANVAS. In general, in terms of presentation, the key idea is that the report should be structured “*as if*” it would be a first draft of a scientific paper for a conference or an academic journal. For examples of good practices, you can follow the Manuscript Organization procedure of a well-respected online journal like PLOS ONE, see: <http://journals.plos.org/plosone/s/submission-guidelines#loc-manuscript-organization>

Note: Some of the restrictions that this document has are typical when you need to complete research proposals, write academics papers, commercial proposals, tenders, etc, so they have been chosen as way to have a feeling of what is normally required in practice. You are

learning here the same practices for document preparation that are necessary in the profession.

Assessment Criteria

Assessment Criteria for the Report
Title <i>Is the title brief enough to be easy to remember, yet specific enough to attract the attention of the right audience? i.e. limited to “250 characters” (a space is a character) and “specific, descriptive, concise, and comprehensible to readers outside the field.”</i> 5 marks
Abstract <i>Has the main objective(s) been clearly described?</i> <i>Is it possible to understand the work that has been done, without the need to describe methodological detail?</i> <i>Does the abstract present the most important results and their significance for a reader outside the field?</i> <i>Is the abstract shorter than 300 words?</i> One mark each question, one extra point for getting a mark in all of them (i.e. max 5)
Content <i>Does the introduction “extend” the title, giving more background that can put the work into context?</i> <i>Can readers outside the field understand the purpose and significance of this report?</i> <i>Is there evidence of enough activity in the Knowledge Area and Topic to justify writing a Report about it?</i> <i>Is there a justification why this combination is important in the whole field of Computing?</i> <i>Does the report include a brief review of the key literature?</i> <i>Does the report contain a description of relevant work in the field published in journals and conferences?</i> <i>Does the Introduction contain a general overview of the report and clearly explains the overall aim of the work and a comment about whether that aim was achieved?</i> One mark each question; three bonus marks for getting a mark in all of them (max 10)
Length <i>Is the report exactly 10 pages long?</i> 5 marks – <u>Strict requirement</u>
Conclusions <i>Does the report provide an interpretation of the results found and would show the range of activities in the combination of Knowledge Area and Topic selected?</i> 10 marks
References <i>Does the report contain at least 10 good papers in the Knowledge Area and Topic selected?</i> <i>Are the references complete and coherent with the combination selected?</i> 10 marks
Total marks: Sum of the marks above.

Note: The mark for an assessment item submitted after the designated time on the due date, without an approved extension of time, will be reduced by 10% of the possible maximum mark for that assessment item for each day or part day that the assessment item is late. Note: this applies equally to week and weekend days.

Assessment Marking Sheet and Instructions for POSTER

The POSTER should be electronically submitted via CANVAS as a pdf file

The following marking scheme will be used

Content (20 pts max):

Appropriate level of information	{0, 1} (very superficial)	{2, 3 }	{4, 5} (well written, thoughtful)
Description of Knowledge Area (KA)	{0, 1, 2} (absent/sketchy)	{3, 4, 5}	{6, 7, 7.5} (well presented, very clear)
Description of KA <u>together</u> with the Topic	{0, 1, 2} (unclear, unspecified)	{3, 4, 5}	{6, 7, 7.5} (very clear intersection)

Format (10 pts max):

Contains all required information	{0,1}	{2,3}	{4,5}
List of sources and proper citations	{0,1} (lousy or no referencing)	{2,3}	{4,5} (clear, well-selected references)
Style (well organized, easy to follow)	{0,1} ()	{2,3}	{4,5}

Presentation (5 pts max):

Good use of illustrations	{0, 1} (none, confusing) {2, 3}	{4, 5} (illustrations clarify and simplify the presentation, work well with the text).
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Design (5 pts max)

Poster is readable, clear, attractive	{0, 1}	{2, 3}	{4, 5}
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Total (sum of points): _____ out of 45

The explanation of the marking scheme follows below.

In each of the columns we have the set of possible marks using set notation. There are three columns, from left to right, corresponding to a 'Low', 'Medium' or 'High' mark. For instance, the description of the Knowledge Area could be marked as 'High' and then one of the three marks can be selected (e.g. either 6, or 7 or 7.5 which is the maximum achievable).

The criteria for 'Low', 'Medium' or 'High' are as follows:

<i>Low:</i>	Poorly done, missing, many mistakes
<i>Medium:</i>	Some mistakes, or omissions, but not grave or serious mistakes
<i>High:</i>	Excellent, thorough, few to no mistakes

Note: The rubric and general structure of the activity are based on the experiences shared in:

Group Projects as a Method of Promoting Student Scientific Communication and Collaboration in a Public Health Microbiology Course

By Kristen L. W. Walton, Jason C. Baker,
in *Bioscience*, vol. 35, no. 2, pp. 16-22, 2009.
<https://files.eric.ed.gov/fulltext/EJ889701.pdf>

Instructions for the preparation of the Poster

Target audience: Aim for a target audience of *high-school students, Years 11-12*, who may be looking at your work to know a bit more about one aspect of ICT (*Knowledge Area*), as discussed in the first Lecture, and how the *Topic* relates to the area in question. Ultimately, it should really motivate curiosity for the field of Computing in general.

LaTeX – The poster has to be prepared in LaTeX and instructions for many types of poster templates can be obtained from Overleaf.com at:
<https://www.overleaf.com/gallery/tagged/poster>

For a poster, try to reduce the number of references to the ones absolutely necessary, and adapt the number of figures accordingly. Check the advice from:

Tips for Making Scientific Posters,
https://courses.physics.illinois.edu/phys596/fa2013/Lectures/ScientificPosterTips_FA12.pdf

The Craft of Scientific Posters, by Michael Alley
<https://www.craftofscientificposters.com>

How To Make An Effective Poster, by Matthew Stuckey and Tammy Hoyer
https://urc.ucdavis.edu/sites/g/files/dgvnsk3561/files/local_resources/documents/pdf_documents/How_To_Make_an_Effective_Poster2.pdf

APPENDIX 1

List of projects in reports for COMP1010 in previous years. Note: this list is provided as a measure of the diversity of the subjects of the reports in previous years, so you can equally be creative on finding a project theme in computing that both motivates you and that also addresses the specifications of the Assessment.

The Role of Discrete Mathematics in Digital Logic

Discrete Mathematics and Logic in Software Design

Discrete Mathematics and The Theory of Programming Languages

How Algorithms and Complexities Relate To The Development Of Specialized Software System

Implementation and Management of Discrete Mathematical and Logical Applications in Security

The Role of Modelling in Algorithms and Complexity

An exploration of complexity and Algorithms with AlphaGo

Note: These topics relate to some of our courses at UoN like

Theory of Computation <https://www.newcastle.edu.au/course/COMP2270>

Algorithms <https://www.newcastle.edu.au/course/COMP2230>

Discrete mathematica <https://www.newcastle.edu.au/course/MATH1510>

The Relevance of Programming Fundamentals within Specialised Software Systems

Note: Fundamentals of Programming can be seen in

Introduction to Programming <https://www.newcastle.edu.au/course/INFT1004>

Object Oriented Programming <https://www.newcastle.edu.au/course/SENG1110>

Programming Languages and Paradigms <https://www.newcastle.edu.au/course/SENG2200>

Ethical Issues in Cybersecurity

Tech Causing Ethical Dilemmas

Ethics and Cybersecurity- Implementation and Management

Ethical Issues arising in Computer-based Security

Our university offers a Master in Cybersecurity

Master of Cybersecurity <https://www.newcastle.edu.au/degrees/master-cyber-security>

Ethical Issues Arising from Computer Software Design

The Ethical Problems with Software Maintenance

Ethical Issues Graphical and Visualization

System Administration and Ethics

Graph Visual Ethics

System Implementation and the Ethics Surrounding

Digital Media Ethics

Ethical Issues Arising from the Introduction of Computing Based Solutions in Society
Coming From Software Quality

Ethics in Tech Support: Let's Get Ethical

Computing-Based Solutions in Society and the Issues Arising From Them

Analysis of the Societal Impacts with Smartphones

Note: A relatively large number of students got interested in topics related to Ethics and Computing.

There are also important topics being developed around the subjects of Ethics and Artificial Intelligence. If you are interested in these topics there are some new journals:

AI and Ethics <https://www.springer.com/journal/43681>

Ethics in Robotics and Artificial Intelligence

<https://www.frontiersin.org/journals/robotics-and-ai/sections/ethics-in-robotics-and-artificial-intelligence>

Platform Technology Modelling

The Graphics Processing Unit in a Modern Context

The Evolution of Human Computer Interaction Hardware: From Turing Machine to Virtual Reality and Beyond

Modelling and its Role in the Software Design Process

A Brief History of the Rise of E-business and Specialised Software development and the Influence of the global COVID19 pandemic on E-commerce: a review of important associated literature

Software Evolution

Information Management: Database Theory and Modelling

The Relationship of Distributed Systems and the Development of Hardware

Software Maintenance and Specialised Software

Technical Support of Specialised Software

Development of Specialised Software Systems

Modelling in Intelligent Systems Developments

Literature review of Software Development in the field of Human-Computer Interaction

Key Components of Embedded Systems in Specific Hardware

Computer–Human Interactions and the Development of Specific Hardware Related to it
Computer Architecture and Organisation

The Development of Digital Media through the use of Specialised Software Systems

The 8 Major Aspects of Software Quality

Specialised Software Systems- the good, the bad, and the ugly

Software Verification and Validation

Hardware for Intelligent Systems

The Importance of the Software Development Process and Software Process
Methodologies to the Development of Specialised Software Systems

An Overview of Information Systems and how they handle the Related Social and Ethical Issues

Implementation and Management Strategies for Securing Information Systems and their Software Components

An Analysis of Specialised Software Systems within Intelligent Systems

A better look at Software Quality: Simple but not too simple

The Role of Modelling in Information Management Practice

Programming Fundamentals: How Modelling is Crucial for Modern Learning and its applications

The Role of Modelling in Digital Media

Software Modelling and Analysis

The Role of Modelling in E-Business: How the visualisation of design processes is employed in the conceptualization and construction of unique online business systems

Ethical Issues in the Technologically Advancing World of Business

The Influence of Software Design Philosophy on Specialized Software Systems

The Effect of Operating System Configuration on Specialised Software Systems

E-bussiness an effective computer-based solution to business practises or a detriment to society with implementation resulting in a rise of privacy, security, ownership, and transitional ethical issues

The Demand for the Development of Specialized Software for Embedded Systems