UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF INFORMATION & COMMUNICATION

TECHNOLOGY (PERAK CAMPUS)

FINAL YEAR PROJECT (FYP)

old structure (WITHOUT UCCD2502)

INFORMATION BOOKLET

Prepared by FYP Committee

*Ver. 18 Jan 2013
*Note: Please always refer to the most updated version

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Important Notice to All Students

Plagiarism is a serious offence. Copy and paste for the report content is prohibited.

You must sign the report submission declaration to confirm that your FYP report has been done by your own efforts without any plagiarism.

1 Introduction

Every student undertaking the degree is required to complete a project under the supervision of a FICT (Perak) academic staff or an external supervisor from the industry. In the case whereby an external supervisor is appointed, an FICT (Perak) staff shall be appointed as a co-supervisor for the student. The project should provide students with the opportunity to bring together the academic knowledge and skills acquired from the range of modules already studied. In general the whole project can be divided into two parts, namely Project I and Project II, which are to be completed by the students in the first and second semesters in Year 3. The objectives and learning outcomes of the two modules are listed as follows.

The objectives of Project I:
[1] To introduce a general approach in starting a project, the need for proper documentation and reporting, and professional presentation of work undertaken.
[2] To equip students with the relevant research and technical skills that may be utilized for the formulation and development of a project.
[3] To introduce current Information & Communication Technology (ICT) related trends and development.

The learning outcomes of Project I:
After completing this unit, students will be able to:
[1] Identify a topical or problem area of interest for an ICT final year project (FYP).
[2] Define the scope and objectives of the FYP.
[3] Develop a project plan for the FYP.
[4] Write formal documentations, such as proposal, literature search summary, work log, and report, required for the FYP.
[5] Determine suitable research methods and tools for problem analysis and project development.
[6] Demonstrate formal presentation skills for a proposal and technical work.

The objectives of Project II:
[1] To encourage students to demonstrate their technical skills, and put in practice their experience and knowledge.
[2] To provide an opportunity for students to highlight and realise in projects, their grasp of interdisciplinary knowledge, including business domain knowledge.
[3] To provide an opportunity for students to further their research, in their discipline and that of the industry, and report their findings appropriately.
[4] To provide an avenue for students to document and showcase their project work, e.g. to potential employers.

The learning outcomes of Project II:
After completing this unit, students will be able to:
[1] Review and re-evaluate the project scope, objectives, and project plan proposed in Project I.
[2] Compile and perform literature and technical review for the project.

[3] Formulate project requirements into specifications or models.
[4] Analyse the specifications or models and select suitable tools or methods for project development.
[5] Develop a system or theorem based on the stated specifications or models.
[6] Evaluate the system or prove the theorem.
[7] Write a formal report for project outcomes.
[8] Present or demonstrate the project results.

Although students are required to take the project modules in their Year 3, they are encouraged to explore the areas of interest, identify the project supervisors and define a project topic if possible, as early as in the second semester of Year 2. The detailed planning of the project is described in the following sections.

Generally, all projects will involve elements of preliminary investigation, project design, realization of design and evaluation.

1.1 Selection of Project Area and Project Proposal

A starting point to tackle the final year project is the identification and selection of an area of interest by the student. A session will be held whereby relevant lecturers are invited to give a short talk to the students of Year 2 Semester 2. This will expose students to the areas available and the people involved. To know better an area of work, students can later seek out potential project supervisors for further discussion. Also, students can look into the internet for more information on the areas of interest. After agreeing with the supervisor on the area of study (and perhaps with a tentative title), students can then make use of the holidays for background reading for their final year project endeavour.

A list of suitable project topics or areas offered by the lecturers will be made known to eligible students through the faculty website, and/or other means. This is done during Year 2 Semester 2. Students are also encouraged to suggest their own projects or projects in collaboration with firms in the industry (where appropriate). To do so, students must prepare a draft proposal and discuss with the relevant lecturer to ensure that the proposal is of a suitable level and standard.

The project selection and student-supervisor allocation process will be finalized during the first two weeks of Year 3 Semester 1. Students are required to register their project title with the approval of an academic staff as the supervisor. Students may wish to modify their preferred projects to be re-cast to their preferred project scope. They can do so subject to the agreement of the relevant supervisor. Also, students need to attend weekly (2 hours) classes for Project 1. Students need to meet their individual supervisors on regular basis, at least, once per fortnight.

By the end of Year 3 Semester 1, students will hand in their final year project proposal for evaluation by the supervisor.

1.2 General Classification of Final Year Project

The following is a guide and framework for setting up and running your project. There are two broad categories:

- Academic research projects;
- Application development projects.

These categories are merely a guide to help you design your project. While most projects will fit neatly into one of these 2 types, others will have characteristics of several project categories. It is important for students to recognise what project category that their project might fit into so as to enable them to address the relevant learning outcomes and requirements in which will help defining a clear and concise project objectives.

1.3 Academic Research Projects

Academic research projects are undertaken to investigate a research question. An academic research project must contain a research contribution from the student, for example, the development of a model or the design of an algorithm towards analysing/solving a problem. A research projects might include more data gathering, the gathering of this data in itself will not constitute an acceptable level of research effort by the student. Rather some rigorous analysis of the data and/or the development of some deliverable based on the data will be required.

The deliverable should have the potential for further research used by a third party, for example the supervisor, an external body or other stakeholders in the project. Furthermore, academic research projects must be designed so that it is clear what factors affect the validity and generalisability of the results.

In developing Academic Research projects, your proposal should state:

- The research question to be addressed;
- Any research initiative or project that your project is a part of;
- The research methods and tools to be used;
- How you will judge the validity and generality of your results;
- In what ways the project may contribute to related research activities.

1.4 Application Development Projects

These types of projects involve design and construction of a prototype for an application that can be in the form of hardware or software or a mixed hardware/software. The design and construction must be non-trivial. The development should follow an established hardware/software engineering method. In exceptional cases, we will permit projects that

involve analysis and design without a construction. Our intention is that the design can be implemented by a third party in the future. Alternatively, a formal theory may be built and its soundness and application demonstrated. In developing Application Development projects and producing the project proposal you should state:

- The purpose of the hardware/software;
- In what way the project is novel;
- What theory (if any) underpins the project;
- Applicable hardware/software engineering methods;
- What tools will be used, so far as decided;
- Methods envisaged for testing and evaluating the hardware/software;
- How the complexity of the work merits it being a final year project.

1.5 Combining Project Categories

For students' projects that do not fit neatly with one of the two project categories, the union of the respective lists of details must be clearly stated in the proposal.

2 Project Milestone and Procedures

2.1 Pre-Project Schedule

Milestones	Date	Action Required (AR) by Supervisor/Moderator/Student
Posting of project titles and supervisors	Year 2 Semester 2	**Supervisor AR:** Supervisor to submit proposed final year project titles to the FYP committee. The titles will be reviewed by FYP committee to ensure its uniqueness and contribution. **FYP Committee AR:** To consolidate and post the Final Year Project titles for student's reference.
FYP Briefing	Week 12 (long semester), Week 6 (short semester)	**Student AR:** Select a topic of interest and look for the relevant lecturers for further discussion about interested project Also visit the FYP website to view all project titles offered (refer to Appendix A)
Selection of project area.	Year 2 Semester 2	**Student AR:** Students to commence preliminary findings and background reading. **Supervisor AR:** Supervisors to hold discussion sessions with students.
Face to face meeting.	Year 2 Semester 2	**Student AR:** After the student has selected an area for his/her final year project, the student is required to meet with the supervisor at least once per week/biweekly as determined by the supervisor.

2.2 Project I Schedule

Milestones	Date[1] *Year 3 Semester 1 (14 weeks)* **Specific schedule will be posted in the FYP website*	Action Required (AR) by Supervisor/Moderator/Student
Meeting to discuss the process of the Final Year Project	Year 3 Semester 1	**Student AR / Supervisor AR:** 2 hours discussion for 14 weeks
Project Registration form	Week 3	**Student AR:** Students to sign two copies of the Final Year Project Registration form to undertake the proposed project title under the supervision of the chosen supervisor. Both forms must also be signed by the supervisor. Students to submit the completed Final Year Project Registration forms to the supervisor (1 copy) and FGO (1 copy). **Supervisor AR:** Supervisor to sign the Final Year Project Registration form to accept the supervision of the named student with the proposed project title, and key in the project info on spreadsheet provided. **FGO AR** Consolidate all Project Registration forms **FYP Committee AR:** Assign supervisor to students who have not got a project yet.
Bi-Weekly Log	Bi-weekly	**Student AR:** Students to meet with their supervisor once per week as determined by the supervisor. Students to submit Bi-Weekly Log to report the progress of the student's project work. **Supervisor AR:**

		Supervisors to verify and sign on the biweekly log and keep them for the record.
Submit TWO (2) Preliminary Proposal Report (to Supervisor)	Week 8	**Student AR:** Students to submit a Preliminary Proposal Report to their supervisor. **Supervisor AR:** Supervisors to evaluate the report and make the necessary arrangement with their students and moderators to evaluate the report according to the Preliminary Proposal Report Marking Scheme. **Moderator AR:** Moderator has to read and evaluate the submitted report according to the Preliminary Proposal Report Marking Scheme.
Submit TWO (2) comb-bound Project Proposal (to Supervisor)	Week 12	**Student AR:** Students to submit a Project Proposal Report. Students to ensure that report has been checked by TURNITIN **Supervisor AR:** Supervisors to evaluate the report according to the Project Proposal Marking Scheme. **Moderator AR:** Moderator has to read the submitted report.
Oral presentation	Week 13,14	**Student:** Student has to present their Project Proposal **Supervisor AR:** Supervisors to make the necessary arrangement with their students and moderators to evaluate the oral presentation according to the Report Proposal Marking Scheme. **Moderator AR:** Moderator has to attend and assess the oral presentation.
Submission of result	Week 15	**Supervisor AR:**

		Supervisors to submit the evaluation result to FGO. **FGO AR:** FGO to collect the results.

Note:
[1] Datelines for each milestone is shorten by half if the subject is conducted during the short (7 weeks) semester.
[2] Please refer to the related appendices for the forms.

2.3 Project II Schedule

Milestones	Date[3] *Year 3 Semester 2 (14 weeks)* *Specific schedule will be posted in the FYP website*	Action Required (AR) by Supervisor/Moderator/Student/Faculty Office
Meeting with supervisor	Year 3 Semester 2	
Bi-Weekly Log	Bi-weekly	**Student AR:** Students to submit a biweekly log to report the progress of the student's project work. **Supervisor AR:** Supervisors to verify and sign on the biweekly log and keep them for the record.
Submit draft reports to the supervisor.	Week 6 to week 10.	**Supervisor AR:** Supervisors to advice and make correction to the draft and returns it back to the student. **Student AR:** Students to revise the draft based on the advice (**major/minor** corrections). Students to ensure that report has been checked by TURNITIN
Submit TWO (2) corrected comb-bound full report copies to the supervisor. (Marked	Week 12.	**Supervisor AR:** Supervisors to pass a comb-bound copy to their moderator for review. Supervisors to mark report according to the Full Report Marking Scheme. Supervisors to make minor corrections

by Supervisor only)		on the report, if any.
Oral Presentation and Product Demonstration. (Assessed by Supervisor and Moderator)	Week 12 and Week 13.	**Supervisor and Moderator AR:** Supervisors to liase with their respective moderators to arrange the venue, time, tools, equipment, marking sheet etc for the viva. Supervisor and Moderator to assess and evaluate the student's project work. Supervisor and moderator to finish evaluating/marking the student's final year project work. Moderator to mark and pass the hardcopy of the mark to supervisor (Moderator has to examine the oral presentation and report using the same marking scheme). Supervisor to staple the mark sheets and pass to the FYP committee. Any disagreement (more than 10%) on the marks allocation can be brought forth to the FYPC for further discussion. The Supervisor to pass the comb-bound report to the student for final **minor correction** before collecting it back from the student. The Supervisor and Moderator keep their respective comb-bound copies for their own future use. **All marks must remain confidential and not to be disclosed.** **Student AR:** Student to do the final **minor correction** on the report before sending it for comb bound. Students to return the comb-bound report to the Supervisor.
Submission of Results	Week 14	**Supervisor AR:** Supervisors to submit the evaluation result to FGO. **FGO AR:** FGO to collect the results.
Submit TWO (2) sets of softcopy to FGO.	Week 15	**Student AR:** Students to submit TWO sets of softcopy to the

(include the poster in the softcopy)		FGO. The softcopies should contain the following (if any): • The complete executable programThe source codes • The full report in Microsoft Word **FGO:** To collect and keep the softcopies.

Note:
[3] Datelines for each milestone is shorten by half if the subject is conducted during the short (7 weeks) semester
[4] Please refer to the related appendices for the forms.

3 Pitfalls and Problems

The final year project will be a demanding but exciting learning experience. However, it is not without problems which, if not identified and addressed, could seriously affect the final result and ultimately reduce your grade. In this section we mention some of these problems and how to avoid them.

a. *The "Overachiever" Problem*. A common problem is selecting a topic that is far too ambitious for the allotted time. Remember that you have only 12-13 weeks to finish the coding, debugging, and testing. Be careful not to select a topic that is unrealistically large. This can lead to frustration as well as errors caused by "cutting corners" and hurrying through the implementation. Discuss with your advisor the scale of what you are planning. If he or she thinks it may be too large, consider implementing the project in stages, each complete in itself. When stage I is working move on to stage II. If you do not finish stage II, however, you will still have a functioning system.

b. *The "Do It Tomorrow" Problem*. Thirteen weeks sounds like a long time, but it goes by quickly. You need an implementation schedule that allocates reasonable amounts of work throughout the entire semester. Then you must stick to that schedule. Don't be tempted to postpone work on the project because week 13 seems so far off. All that happens is that during the final few weeks you rush madly to get something working, and software implemented in a rush rarely works correctly!

c. *The "Sleeping Member" Problem*. In the ideal world, all team members have equal ability, equal interest in the problem, and work equally hard. In the real world that may not happen. You may have one (or more) team members who do not carry their share of the workload, not because of a lack of ability, but rather lack of interest or motivation. This is a serious problem because, although part of your grade is based on each individual's effort, another part is based on successfully finishing the project. A non-contributing team member can slow down or prevent completion of the work. If you have

a teammate who is not doing his or her share of the work, talk to them and stress the importance of everyone doing their job. If this does not solve the problem then talk to your supervisor. Don't let the failure of others prevent you from completing the work and receiving a good grade.

d. *The "Poop Out At The End" Problem*. You have worked hard for 13 weeks to complete this project. You have spent many late nights and chased down hundreds of bugs, but it is now working, so are you done? Absolutely not! The project grade is not based only on the programs you develop but also on your written reports and oral presentations. Remember that even though you may be 'burned out" from implementation, there is still work to be done. Don't produce a poorly written paper or give a poorly organized presentation. That will negate much of your good work. Put in the time needed to prepare both a well written, high-quality final report and a well organized, polished presentation. A good job on these last steps will insure that you receive a grade that fairly represents the work you have done.

4 Project Report Contents and Arrangement

Students should not copy large sections of books and/or reports. The change in writing style can be easily detected. Students will be penalised for copying. Whenever values of short passages have been quoted, the full reference should be given. Students will be penalised for not referencing previous work.

4.1 Report Contents and Arrangement Guidelines for Project I

The essential components of the content of the final year project proposal should include the items listed below. They should also be arranged in the top-down order as listed. The proposal should not exceed 30 pages.

Item No.	Arrangement of the Proposal	Content
1	Title Page	1 page. Refer to Appendix E.
2	Abstract	Maximum 2 pages. Refer to Appendix E . It should describe the format / outline of the proposal. Abstracts are formal summaries of your completed work: • Abstracts, like all summaries, cover the main points of a piece of writing that includes the field of study, problem definition, methodology adopted, research process, conclusion and planning of the project work, etc. • Unlike executive summaries written for non-specialist audiences, abstracts use the same level of technical language and expertise found in the article itself. • Unlike general summaries which can be adapted in many ways to meet various readers' and writers' needs.

		Abstracts typically serve the following goals:
		• Help readers decide if they should read an entire article. • Help readers to see your key findings and achievement of your project. • Help readers understand your project by acting as a pre-reading outline of key points. • Help readers to review technical work without becoming bogged down in details.
3	Table of Contents	Refer to Appendix E. It should list all the chapters and their corresponding sections and subsections found in the report.
4	List of Tables	Refer to Appendix E. It should list all the tables and their corresponding page numbers found the report.
5	List of Figures	Refer to Appendix E. It should list all the figures and their corresponding page numbers found the report.
6	List of Symbols	Refer to Appendix E. It should list all the symbols found in the report and their corresponding meaning.
7	List of Abbreviations	Refer to Appendix E. It should list all the abbreviations found in the report and their corresponding meaning.

8	Sectioning	Number of pages should be between 20 to 30 pages. Students should familiarize themselves with report writing skills such as division of work and report sectioning. Each chapter should begin on a new page. Within a chapter, use as many sections and subsections as possible and where appropriate. Subsection is limited to 3 levels only.
		
		Chapter 1: Introduction
		       • Motivation and Problem Statement (1 to 2 paragraphs)
		          o It should be short and concise, emphasizes on overview of problems and the motivation of the whole project. At the very minimum, students should present a summary of the problem and the problem domain of the project.
		
		          o You need to justify the existence of your project. Problem statement - state the existing problem to be solved. Motivation - why want to solve it, why the project is needed? Writing up on problem statement and motivation: you need to solve some problems. You need to improve something. You need to develop something that previously have not existed or carry out enhancement work. Example: You

			want to develop a Mandarin voice recognition software, because the software does not exist. Or, you improve on the existing Mandarin voice recognition software because the existing often misinterprets some words.

want to develop a Mandarin voice recognition software, because the software does not exist. Or, you improve on the existing Mandarin voice recognition software because the existing often misinterprets some words.

- o Common mistake: students normally confuse problem statement (or motivation) with technical difficulties.

- Project Scope (1-2 paragraph)
  - o Describe what you are going to deliver at the end of the project. (e.g. a piece of software, a piece of hardware, an improvement plan of a system, a development framework, a research survey, a model of a system, or simulation result, etc). Give a general overview of your solution of the problem.

  - o Example: This project develops a model on the social behavior of Internet with various simulation results on some scenarios. This project involves a new algorithm design to speed up the grid computing.

- Project Objectives (1-4 paragraph)
  - o Describe the purpose and aims of the project which give more detailed information than the project scope.

  - o For example: The project aims to improve at least 10% in processing performance over the current Sun Solaris grid computing engine with our new algorithm.

  - o The following questions are applicable:
    - What in general will this project try to achieve?
    - What will this project focus on?
    - What IS NOT covered by this project?

  - o Common mistakes:
    - Stating learning objectives instead of project objectives. For example, learning programming languages, tools etc.
    - Treating project timelines as project

			objectives.
			
			• Impact, significance and contribution (1-2 paragraph)
			    ○ Describe how the project is going to benefit the readers or anybody.
			
			    ○ Describe the reasons for solving the problems mentioned in the problem statement.
			
			    ○ Why are the problem and solution of your project interesting? Why is your project worth your readers' time to read it?
			
			    ○ Make your readers feel that your project is important or "desirable".
			
			    ○ This is where you need to "sell" or "promote" your project.
			
			    ○ For example: By having this educational software, the student will visualize better on how the processor works.
			
			    ○ For example: This survey has to be carried because it will form the basis to anticipate and project the market trend ahead of time.
			
			• Background information (> 3 paragraphs)
			    ○ A brief section giving background information may be necessary, especially if your work spans two or more traditional fields.
			
			    ○ Give a descriptive view on the field (or sub-field) of the project and historical development prior to the project.
			
			    ○ Give your readers who may not have any experience with some of the material needed to follow your project.
			
			    ○ It may be a good practice to give some definition of some key terms, or impart some key technical knowledge to the readers at this point.
			
			    ○ The ultimate question: What my readers,

especially those who are not the same field as I do, need to know before they continue to read the rest of the document?

Chapter 2
- Literature Review
  - Highlight what is the current practice or prior arts towards the problem. It can be structured or non-structured (for unexplored areas)

  - If there are prior arts, students should refer or cite them and include the referenced art in the references section.

- Fact Finding
  - Scientific method to do fact finding and analysis - reviewing existing manuals and procedures, preparing questionnaires, observations, research and conducting personal interviews.

  - Accomplished by techniques such as data element analysis; input-output analysis, including flow diagrams; recurring data analysis; and report use analysis.

- Data Collection
  - Collect relevant data and documents to justify the problems and need for solutions

- Critical Remarks of previous works
  - Describe the strength and weakness of any previous work that are similar to your project

  - Compare them with your proposed solutions.

Chapter 3
- Methodology and tools
  - Methodologies and General Work Procedures (1-2 paragraphs + figures)

  - A brief statement of the methodology for the realization of the project. It could define the general approach to how the project and its output(s) will be realized.

- Implementation Issues and Challenges (1-2

		paragraphs)
		  o Difficult issues and challenges in the implementation.
		  o Novel aspects of this project (if any)
		  o This is the point that you describe your technical difficulties to implement your solutions.
		
		 • Timeline (1 paragraph)
		  o Estimated timeline for deliverables and milestones
		  o Graphical - Gantt chart format
		  o Planning for current semester and next semester.
		
		 • Requirement Specifications
		  o User requirements
		  o System Performance Definition
		  o Design and Verification Plan
		
		Chapter 4
		 • Conclusion (1 paragraph)
		  o Summarize the project including the problem, motivation, and proposed solutions

9	Bibliography	Refer to Appendix F. It should list all the reference materials used for the project.
10	Appendices	The appendices are supplementary materials which because of their length would break up the main flow of the report. The following is a guideline on the arrangement of appendices and what may be included as part of the appendices. - Specifications, data sheets and drawings of equipment or components used. - Data used for analysis. - Survey sheets. - Charts and data tables. - Lengthy mathematical derivations. - etc

4.2 Report Contents and Arrangement Guidelines for Project II

The essential components of the content of the final year project report should include the items listed below. They should also be arranged in the top-down order as listed. The report should comprise between 20,000 – 40,000 words.

Item No.	Arrangement of the Report	Content
1	Front Cover	Content same as the Title Page. Refer to Appendix D. The board used for binding should have sufficient rigidity to support the weight of the work when standing on the shelf. Note the format (font type, size, capitalization and the sentences arrangement) must be strictly adhere to. No changes are allowed. **It is the responsibility of the students to remind the photocopy vendors to adhere to the format stated when binding.** Any discrepancy will result in the rejection of the students' soft-bound report and thereafter students will have to re-bind at their expense.
2	Report Status Declaration Form	1 page. Refer to Appendix E.
3	Title Page	1 page. Refer to Appendix E.
4	Declaration of Originality	1 page. Refer to Appendix E.
5	Acknowledgements	1 page. Refer to Appendix E.
6	Abstract	Maximum 1 page. Refer to Appendix E. It should states the field of study, problem definition, methodology and techniques adopted, research process, results obtained and conclusion of the project work.
7	Table of Contents	Refer to Appendix E. It should list all the chapters and their corresponding sections and subsections found in the report.
8	List of Figures	Refer to Appendix E. It should list all the figures and their corresponding page numbers found the report.
9	List of Tables	Refer to Appendix E. It should list all the tables and their corresponding page numbers found the report.
10	List of Symbols	Refer to Appendix E. It should list all the symbols found in the report and their corresponding meaning.
11	List of Abbreviations	Refer to Appendix E. It should list all the abbreviations found in the report and their corresponding meaning.
12	Chapters	Each chapter should begin on a new page. Within a chapter, use as many sections and subsections as possible and where appropriate. The following is a general guideline on the arrangement of chapters and what to be included as part of each chapter. Chapter 1

		- Introduction
		    - Problem statement.
		    - Background and motivation.
		    - Objectives.
		Chapter 2
		    - Facts finding.
		    - Literature research and review of previous work.
		    - Data collection.
		Chapter 3, 4 (or more)
		    - Methodology and tools
		    - Requirement
		    - Specification: Analysis, Design and Verification Plan
		    - Implementation and Testing.
		Chapter 5
		    - Project Review, Discussions and Conclusions: what has been achieved, relate to Objectives, problems encountered, personal insight into the total research experience
		    - Future Work: indicate improvements / further developments that can be made.

13	Bibliography	Refer to Appendix F. It should list all the reference materials used for the project.

14	Appendices	The appendices are supplementary materials which because of their length would break up the main flow of the report. The following is a guideline on the arrangement of appendices and what may be included as part of the appendices.
		
		    - Specifications, data sheets and drawings of equipment or components used.
		    - Data used for analysis.
		    - Survey sheets.
		    - Charts and data tables.
		    - Lengthy mathematical derivations.
		    - etc

4.3 Poster Content and Arrangement Guidelines for Project I and Project II

The essential components of the content of the poster report should include the items listed as follow:

Item No.	Poster Presentation	Content
1	Size	A1,
2	Font	Use contrasting fonts for the title, text and figure legends. (Ensure the font size used are large enough)
3	Required Elements	- You may use photos, figures, and table - Determine a logical sequence for the material you will be presenting. - Organize that material into sections, e.g., Introduction, Methods, Results, Discussion, and Conclusions. - Arrange the material into columns.
4	File Type	Softcopy, save the softcopy in any of the following format: JPEG / TIFF / BMP / EPS.

5 Project Report Format

5.1 Report Format for Project I

The report should be written using the third person and in the past tense. For example, do not use "I" or "you" in the report.

- Font
  - Times New Roman, 12 points, 1.5 line spacing.
  - Applies to ALL, including figure caption, table caption, chapter headings and subheadings.
  - Exceptions:
    Header, Footer, Footnote, Words in Figure/Table, font size should be within 10 to 11 points.
  - Colour: black.
  - Citing references in text: number the cross-references 1, 2, 3, and so on, font size 12.

- Language
  - British English

- Printing
  - Single side.

- Paper
  - A4 size, 80g paper.

- Header
  - Align left: chapter number and title.

- Footer
  - Align right: page number.
  - The following is to be aligned left:
    BIS (Hons) Information Systems Engineering
    Faculty of Information and Communication Technology (Perak Campus), UTAR.

- Page Number
  - Align right at the Footer.
  - Title, Abstract, Table of Contents and Listing – pages are numbered using small Roman numeric (i, ii, iii, etc). Note even though the Title Page is numbered i, the number is not to be printed on the page.
  - Chapters and Bibliography – pages are numbered 1, 2, 3, etc.

- Appendices – pages are numbered A-1, A-2, etc for Appendix A, B-1, B-2, etc for Appendix B and etc.

- **Margins**
  – Left (1.5 inches, except the front cover 1.2 inches)
  – Right (1 inch)
  - Header/Footer (0.5/0.4 inch)
  – Top/Bottom (2 inches)

- **Title Page (refer to Appendix E)**
  - Do not include UTAR logo.
  - The font used is Times New Roman 12.
  - Note the format (font type, size, capitalization and the sentences arrangement) of the Title Page in Appendix E must be strictly adhere to. Change the word "REPORT" to "PROPOSAL".

- **Table of Contents (refer to Appendix E)**

- **Tables/Figures (refer to Appendix E)**
  – Should include table (figure) caption immediately below the table (figure).
  – Number the tables and figures sequentially, with respect to the chapter or section of a chapter. To be consistent, use either one format, not both.
  - For example, Table 2-2 is the second table of chapter 2.
  - For example, Table 4-2-6 is the sixth table of section 2 of chapter 4

- **Citation**
  – Use Harvard standard citation (please refer to Appendix F).

- **Bibliography**
  – Use Harvard standard citation (please refer to Appendix F).
  .
- **Binding**
  – Must be comb-bound.
  – One (1) blank sheet of paper should be put before the first type page and another blank paper should be attached before the back cover.

- **Softcopy**
  – **TWO (2)** softcopy of reports should be submitted in CD/DVD which containing the following:
    - The FYP or dissertation/thesis is required to be saved in PDF format only and save in 1(one) PDF file, no separate files for different sections of FYP and dissertation/thesis are allowed. The file size must not be more than **100MB**.
    - Attachments to the FYP or dissertation/thesis such as complete executable program programming, set-up/installation guide and source code of program source codes (or systems and data files, art works, etc) in various file formats

must be compressed and zipped into **ONE (1)** zipped file. The file size of the zipped file must not be more than **200MB.**

– The CD/DVD should be submitted in a CD/DVD casing with appropriate labeling. The CD/DVD should be attached at the back of the dissertation report.

– The "Session" should refer to the session of the FYP1
e.g. FYP1 registered during session May 2011 – "Session: May 2011"

Labelling for CD/DVD:

```
Name:
ID:
Project Title:
Supervisor:
Degree Program:
Faculty:
Session:
```

5.2 Report Format for Project II

The report should be written using the third person and in the past tense. For example, do not use "I" or "you" in the report.

- Font
  - Times New Roman, 12 points, 1.5 line spacing.
  - Applies to ALL, including figure caption, table caption, chapter headings and subheadings.
  - Exceptions:
    Header, Footer, Footnote, Words in Figure/Table, font size should be within 10 to 11 points.
  - Colour: black.
  - Citing references in text: number the cross-references 1, 2, 3, and so on, font size 12.

- Language
  - British English

- Printing
  - Single side.

- Paper
  - A4 size, 80g paper.

- Header
  - Align left: chapter number and title.

- Footer
  - Align right: page number.
  - The following is to be aligned left:
    BIS (Hons) Information Systems Engineering
    Faculty of Information and Communication Technology (Perak Campus), UTAR

- Page Number
  - Align right at the Footer.
  - Title, Declaration of Originality, Acknowledgements, Abstract, Table of Contents and Listing – pages are numbered using small Roman numeric (i, ii, iii, etc). Note even though the Title Page is numbered i, the number is not to be printed on the page.
  - Chapters and Bibliography – pages are numbered 1, 2, 3, etc.
  - Appendices – pages are numbered A-1, A-2, etc for Appendix A, B-1, B-2, etc for Appendix B and etc.

- Margins
  - Left (1.5 inches) except the Front Cover (1.2 inches)
  - Right (1 inch)
  - Header/Footer (0.5/0.4 inch)
  - Top/Bottom (2 inches)

- Front Cover (refer to Appendix D)
  - Content same as the Title Page.
  - Do not include UTAR logo.
  - The font used is Times New Roman 12.
  - Note the format (font type, size, capitalization and the sentences arrangement) must be strictly adhere to. No changes are allowed.

- Table of Contents (refer to Appendix E)
- Tables/Figures (refer to Appendix E)
  - Should include table (figure) caption immediately below the table (figure).
  - Number the tables and figures sequentially, with respect to the chapter or section of a chapter. To be consistent, use either one format, not both.
  - For example, Table 2-2 is the second table of chapter 2.
  - For example, Table 4-2-6 is the sixth table of section 2 of chapter 4

- Citation
  – Use Harvard standard citation (please refer to Appendix F).

- Bibliography
  – Use Harvard standard citation (please refer to Appendix F).

- Binding
  - The title page should be put immediately after the front cover followed by the blank sheet. Another blank sheet should be attached before the back cover.

- Softcopy
  - **TWO (2)** softcopy of reports should be submitted in CD/DVD which containing the following:
    - The FYP or dissertation/thesis is required to be saved in PDF format only and save in 1(one) PDF file, no separate files for different sections of FYP and dissertation/thesis are allowed. The file size must not be more than **100MB**.
    - Attachments to the FYP or dissertation/thesis such as complete executable program programming, set-up/installation guide and source code of program source codes (or systems and data files, art works, etc) in various file formats must be compressed and zipped into **ONE (1)** zipped file. The file size of the zipped file must not be more than **200MB.**
    - **The file naming format should be Course Code + Year of Submission + Student ID+ Copy No (eg. BA-2010-1007640-1)**
  - The CD/DVD should be submitted in a CD/DVD casing/pocket with appropriate labeling. The CD/DVD should be attached at the back of the dissertation report.
  - The "Session" should refer to the session of the FYP2
    e.g. FYP2 registered during session January 2012 – "Session: January 2012"

Labelling for CD/DVD:

Name:
ID:
Project Title:
Supervisor:
Degree Program:
Faculty:
Session:

  - After students have successfully completed their oral presentation and product demonstration, students a required to submit a FINALIZED copy of their CD to the FGO

5.3 Other Points to Note on Writing Report

1. A thesis should be written according to the intended group of reader. It should be in a logic form with strong explanation to convince the reader on the conclusion of the thesis. It should be written in good language and easy to understand . Any technical language or daily language should be avoided. As far as possible all statements must be supported by numbers and data.

2. The writer should be able to defend all statements by referring to a reliable research or the research findings.

3. Symbols or nomenclature used should be defined. Standard symbols or acronym normally accepted in engineering field can be used. International System Unit (S.I) should be used. If you use other units, SI equivalent unit should be in bracket.

4. Equations and formulae should be typed and in Italic. Avoid using more the necessary lines by giving alternatives, for example:

   $(y/x) = ax + b$ preferred compared to:

   $y/x = ax + b$

5. Diagram can include graphs and figures. It can be numbered together or separately with photograph. Diagrams should be easy to understand. Every diagram should be numbered using the Arabic number at the bottom (if possible different for each chapter) and should be given an informative title.

6. Pictures should be pasted on the page, numbered and titled.
   i. Every diagram should have relevant title and should be numbered.
   ii. Coordinate units (abscissa) should be written clearly in the graph.
   iii. All the data points and lines should be clear - generally it should not be more than 2 or 3 curves in every diagram
   iv. Types of different data points must be shown in a legend.
   v. Every diagram should be referred and elaborated in the text.
   vi. The gridlines should be in appropriate intervals.

6 Viva: Oral Presentation and Product Demonstration

This exercise is intended to assess the students' ability to deliver a technical presentation as a result of their project investigation. The Oral Presentation is attended and assessed by the Supervisor and Moderator.

The presentation should describe the aim of the project, an outline of the presentation, the results obtained and the extent to which the goals of the project are met. The time allocated for the presentation session is 15 to 20 minutes and an additional 10 minutes for the 'Question and Answer' session.

The product demonstration session can be arranged to be the subsequent session to the oral presentation session for effective assessment. Otherwise, the demonstration may be arranged separately. The time allocated for the demonstration session is not more than 30 minutes.

7 FYP Guidelines for Supervisor and Moderators

Guidelines for Supervisor

The Project Student conducts their work under the direction of the Project Supervisor. The Supervisor can be a qualified internal academic faculty staff or someone qualified external to the faculty. In the case of external supervisor, an internal supervisor will be attached to the project to act as the moderator.

The Supervisor's role is to stimulate discussion and indicate the various avenues of approach and resources available. Although the Supervisor may serve as a guide and mentor for the project, it is emphasized that the ultimate responsibility for the project lies with the students.

Purchase of special components or equipment requires prior consent from the Supervisor, who acts as the 'budget controller' due to the limited funds available.

The Supervisor will evaluate the biweekly report, the project proposal, the full report, the oral presentation and product demonstration.
If the student could not manage to meet the supervisor in 4 consecutive weeks, the lecturer will have to contact the student to find out the current status of the student, and report the situation to the Final Year Project committee.

Guidelines for Moderators

Moderator is member of staff whose function is to ensure a uniform standard of assessment is applied to each project.

Moderation will take place at two stages:
- An assigned Moderator will evaluate the oral presentation and product demonstration. The moderation forms are available in the faculty's shared drive.

Appendices

Appendix A: Final Year Project Titles List

Go to: http://www.utar.edu.my/fict-pk/ ⇒ Student Portal ⇒ Final Year Project

Appendix B: Final Year Project Registration Form

FINAL YEAR PROJECT REGISTRATION FORM

(Project I / Project II)

I hereby affirm that the originality and authenticity of the Final Year Project to be undertaken will be upheld. The report and/ or the system that I submit at the conclusion of the Final Year Project will be the result of my own investigations and effort.

I understand that cheating and plagiarism constitute a serious violation of the university regulations, which will not only result in a failing grade for the Final Year Project but subject me to further disciplinary actions.

Signature of Student:

_____

Name:
Date:

Student Name :
Student ID   :
Contact No   :
Email Address :
Course   :
Year of Study :

Area of Study   :
Proposed Project Title   :

Signature of Supervisor:

_____

Name:
Date

Appendix C: Final Year Project Biweekly Report

FINAL YEAR PROJECT BIWEEKLY REPORT

(Project I / Project II)

Trimester, Year:	Study week no.:
Student Name & ID:	
Supervisor:	
Project Title:	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

2. WORK TO BE DONE

3. PROBLEMS ENCOUNTERED

4. SELF EVALUATION OF THE PROGRESS

_____   _____

Supervisor's signature   Student's signature

Appendix D: Report Front Cover

2 inches from the top

ONLINE B2B AND B2C PURCHASING
BY

ANTHONY CHAN MING WAI
(REFER NEXT PAGE FOR MARGIN)

A REPORT

SUBMITTED TO

Universiti Tunku Abdul Rahman

in partial fulfillment of the requirements

for the degree of

BACHELOR OF COMPUTER SCIENCE (HONS)

Faculty of Information and Communication Technology
(Perak Campus)

MAY 2010

2 inches from the bottom

39

Appendix E: Sample of Report Arrangement

REPORT STATUS DECLARATION FORM

Title: _____
_____
_____

Academic Session: _____

I   _____

(CAPITAL LETTER)

declare that I allow this Final Year Project Report to be kept in

Universiti Tunku Abdul Rahman Library subject to the regulations as follows:

1.   The dissertation is a property of the Library.

2.   The Library is allowed to make copies of this dissertation for academic purposes.

Verified by,

_____   _____
(Author's signature)   (Supervisor's signature)

Address:
_____
_____   _____
_____   Supervisor's name

Date: _____   **Date**: _____

ONLINE B2B AND B2C PURCHASING

By

Anthony Chan Ming Wai

A REPORT

SUBMITTED TO

Universiti Tunku Abdul Rahman

in partial fulfillment of the requirements

for the degree of

BACHELOR OF INFORMATION TECHNOLOGY (HONS)

COMPUTER ENGINEERING

Faculty of Information and Communication Technology
(Perak Campus)

MAY 2010

DECLARATION OF ORIGINALITY

I declare that this report entitled "**METHODOLOGY, CONCEPT AND DESIGN OF A 2-MICRON CMOS DIGITAL BASED TEACHING CHIP USING FULL-CUSTOM DESIGN STYLE**" is my own work except as cited in the references. The report has not been accepted for any degree and is not being submitted concurrently in candidature for any degree or other award.

Signature : _____

Name   : _____

Date   : _____

ACKNOWLEDGEMENTS

I would like to express my sincere thanks and appreciation to my supervisors, Dr. B.M. Armstrong and Dr. G.A. Armstrong who has given me this bright opportunity to engage in an IC design project. It is my first step to establish a career in IC design field. A million thanks to you.

To a very special person in my life, Stephanie Yuen, for her patience, unconditional support and love, and for standing by my side during hard times. Finally, I must say thanks to my parents and my family for their love, support and continuous encouragement throughout the course.

When I asked for strength, God gave me more burdens to carry.

When I asked for love, God sent me people with problems.

When I asked for wisdom, God gave me more problems to solve.

I see that I did not get the things I asked for but I have been given all the things that I needed. Thank God.

ABSTRACTS

This project is an IC design project for academic purpose. It will provide students with the methodology, concept and design of digital integrated circuit. This will be illustrated through the construction of a Teaching Chip. Since CMOS technology is well suited for digital circuits, it is therefore implemented in the project. From the design point of view, emphasis is laid on the IC design flow. A flow exists due to the fact that IC design business involves integrating four diverse major areas namely device operation, circuit analysis and design, circuit simulation and lastly, physical layout and re-simulation. Emphasis is also made on the importance of an EDA tool; how it is incorporated into the design flow and aids IC design jobs. The tool used in this project is the Tanner Tools. There are several styles to design integrated circuit and the one used here is the full-custom design style. In the area of device operation and circuit analysis/design, the circuit design job involves hand calculation for DC and transient design. These include designing the logic threshold voltage and propagation delay time of the circuit according to specification. Three common methods, Average-Current, Differential Equation and Digital Model are reviewed for their suitability in delay time hand calculation. Since hand calculation only presents an approximated circuit design, computer simulation is compulsory to verify the design. In the area of circuit simulation, SPICE MOSFET Level 2 model is used due to its suitability for teaching. Thus, at minimum, 2.0 micron CMOS is chosen. Beyond 2.0 micron, more complicated SPICE MOSFET model is required for simulation and is therefore avoided. Suitable CMOS processes are reviewed and consequently, MOSIS/Orbit 2.0 micron process is chosen. In the areas of physical layout and re-simulation, the designed circuit was laid out, design rule check was performed on the layout followed by layout extraction to obtain the equivalent SPICE netlist for re-simulation. The re-simulation includes the effect of parasitic capacitance and resistance, which are not included in the earlier circuit design. Re-simulation is necessary since parasitic affects the transient characteristics. Lastly, suitable digital circuits for teaching will be designed and packed onto the Teaching Chip. Examples include inverter, ring oscillator, NAND, NOR, static CMOS, etc.

The output material of the project would be SPICE programs, DC and transient simulation results, cell level, block level and chip level layouts.

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LIST OF FIGURES

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LIST OF ABBREVIATIONS

CMOS	Complementary Metal Oxide Semiconductor
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
IC	Integrated Circuit
DRC	Design Rule Checker
SCNA	Scalable CMOS N-Well Analog
ASIC	Application Specific Integrated Circuit
HDL	Hardware Description Language

Appendix F: Harvard Style Referencing

How To Cite References - Harvard Style

Contents

- Getting Started

- Example of Citation within the Text and Reference List Examples

  o Books & eBooks

  o Journal Articles

  o Internet/Websites

  o Cases and Legislation

  o Company Information

  o Conference Papers & Proceedings

  o Newspapers

  o Multimedia

  o Standards & Patents

  o CMO

  o Lecture Notes

  o Theses

  o Personal Communication

  o Citing Information Someone Else has Cited

- A reference list: what it should look like?

- Abbreviations

- Other Sources of Information

Getting started

There are two components to referencing: citations in your paper and the reference list at the end of your paper.

<u>Example of Citation within the Text:</u>
Harvard is an 'author/date' system, so your citation consists of author(s) and year of publication.

Citation of a book (the same format applies for a journal article)

No punctuation between surname and date

(Smith & Bruce 1997) ← Round brackets

Authors' surnames   Publication date
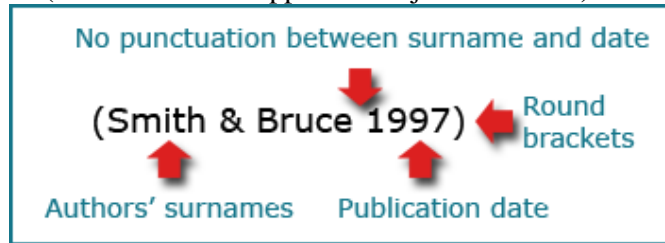
If you quote directly from an author or to cite a specific idea or piece of information from the source you need to include the page number of the quote in your citation.

No punctuation between surname and date

(Smith & Bruce 1997, p8) ← Page number

Authors' surnames   Publication date
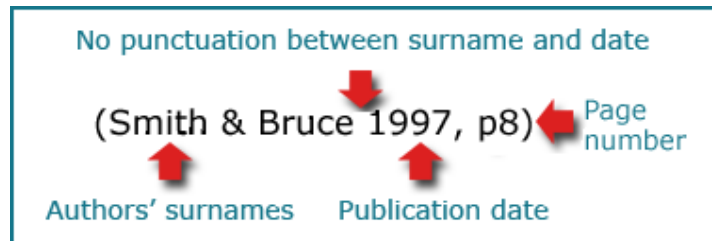
The reference list:
All citations should be listed in the reference list at the end of your document.

Reference list entry for a book

Authors   Year of Publication   Title

Smith, J & Bruce, S 1997, *A guide to personnel management*, 4th edn. McGraw Hill, Sydney.

Edition   Place of Publication
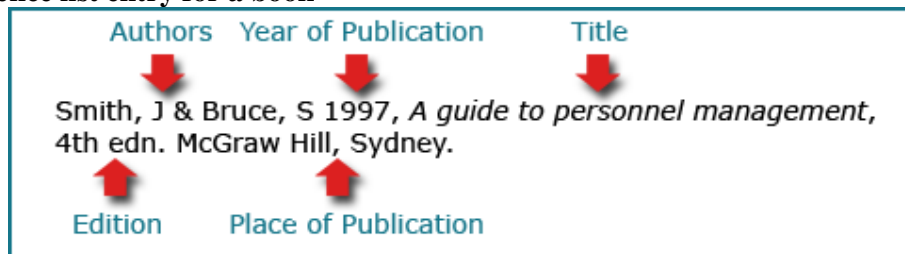
Reference list entry for a journal

Article Author(s)   Date   Article Title

Conley, TG & Galeson, DW 1998, 'Nativity and wealth in mid-nineteenth century cities', *Journal of Economic History*, vol. 58, no. 2, pp. 468-493.

Journal Title

Volume & Issue Details Page Range of Article
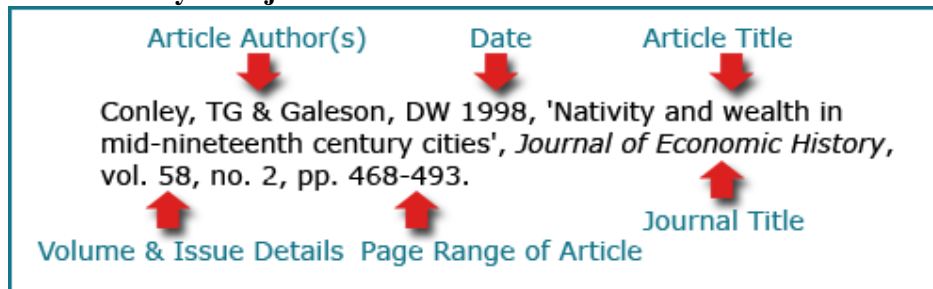
Reference list entries contain all the information that someone needs to follow up your source. Reference lists in Harvard are arranged alphabetically by author.

Citation within the Text and Reference List Examples

Books & eBooks		
Material Type	**Example of Citation within the Text**	**Reference List Example**
Book: Single Author	(Holt 1997) or Holt (1997) wrote that...	Holt, DH 1997, *Management principles and practices*, Prentice-Hall, Sydney.
Book: 2 or 3 Authors	(McCarthy, William & Pascale 1997)	McCarthey, EJ, William, DP & Pascale, GQ 1997, *Basic marketing*, Irwin, Sydney.
Book: More Than 3 Authors	(Bond et al. 1996)	Bond, WR, Smith, JT, Brown, KL & George, M 1996, *Management of small firms*, McGraw-Hill, Sydney.
Book: No Author	(A history of Greece 1994)	*A history of Greece* 1994, Irwin, Sydney.
Book: Editor	(ed. Jones 1998)	Jones, MD (ed.) 1998, *Management in Australia*, Academic Press, London.
Book: 2 or More Editors	(eds Bullinger & Warnecke 1985)	Bullinger, HJ & Warnecke HJ (eds) 1985, *Toward the factory of the future*, Springer-Verlag, Berlin.
Book: Translator & Author	(trans. Smith 2006)	Colorado, JA 2006, *Economic theory in the Mexican context: recent developments on the ground,* trans. K Smith, Oxford University Press, Oxford.
Book: Organisation as Author	(Australian Bureau of Agricultural and Resource Economics 2001)	Australian Bureau of Agricultural and Resource Economics 2001, *Aquaculture development in Australia: a review of key economic issues*, ABARE, Canberra.
Book: Chapter or Article in Edited Book	A number of disturbing facts intrude' (Milkman 1998, p. 25)	Milkman, R 1998, 'The new American workplace:high road or low road?' in *Workplaces of the future*, eds P Thompson & C Warhurst, Macmillan Press, London, pp. 22-34.
Book, edition other than first.	(Drafke, 2009)	Drafke, M 2009, *The human side of organizations*, 10th edn, Pearson/Prentice Hall, Upper Saddle River, N.J
E-book	(Aghion & Durlauf 2005)	Aghion, P & Durlauf, S (eds.) 2005, *Handbook of economic growth*, Elsevier, Amsterdam. Available from: Elsevier books. [4 November 2004].

Material Type	Example of Citation within the Text	Reference List Example
E-book: Chapter or Article in an Edited E-book	'Historical thinking is actually a Western perspective' (White 2002, p. 112)	White, H 2002, 'The westernization of world history' in *Western historical thinking: an intercultural debate*, ed J Rusen, Berghahn Books, New York pp. 111-119. Available from: ACLS Humanities E-Book. [14 May 2009].
Book: Different Works by Same Author in Same Year	(Bond 1991a) (Bond 1991b)	Bond, G 1991a, *Business ethics*, McGraw-Hill, Sydney. Bond, G 1991b, *Corporate governance*, Irwin, London.

Journal Articles

Material Type	Example of Citation within the Text	Reference List Example
Journal Article: Print	(Conley & Galeson 1998)	Conley, TG & Galeson, DW 1998, 'Nativity and wealth in mid-nineteenth century cities',*Journal of Economic History*, vol. 58, no. 2, pp. 468-493.
Journal Article: Electronic Database	(Liveris 2011)	Liveris, A 2011, 'Ethics as a strategy', *Leadership Excellence*, vol. 28, no. 2, pp.17-18. Available from: Proquest [23 June 2011].

Internet/Websites

Material Type	Example of Citation within the Text	Reference List Example
Webpage: No Author	(Improve indigenous housing 2007) *Use first few words of the page title*	*Improve indigenous housing now, government told, 2007.* Available from: <http://www.architecture.com.au/i-cms?page=10220> . [8 February 2009].
Webpage: No Date	(Jones, n.d.)	Jones, MD n.d., *Commentary on indigenous housing initiatives*. Available from: <http://www.architecture.com.au>. [6 June 2009].
Web Document	(Department of Industry, Tourism and Resources 2006)	Department of Industry, Tourism and Resources 2006, *Being Prepared for an Influenza Pandemic: a Kit for Small Businesses*, Government of Australia, Available from: <http://www.innovation.gov.au>. [28 February 2009].
Website	(Australian Securities Exchange 2009)	Australian Securities Exchange 2009, *Market Information*. Available from: <http://www.asx.com.au/professionals/market_information/index.htm>. [5 July 2009].

Blog	(Newton 2007)	Newton, A. 2007, Newcastle toolkit. 16 January 2007. *Angela Newton: Blog*. Available from: <https://elgg.leeds.ac.uk/libajn/weblog/>. [23 February 2007].
Computer Software	(OpenOffice.org 2005)	OpenOffice.org, computer software 2005. Available from: <http://www.openoffice.org>. [11 January 2005].
Web Based Image / table / figure	(The Lunar Interior 2000)	*The Lunar Interior*, 2000. Available from: <http://www.planetscapes.com/solar/browse /moon/moonint.jpg>. [28 November 2000].

Cases and Legislation

Material Type	Example of Citation within the Text	Reference List Example
Cases	(*R v Tang (2008)* 237 CLR 1)	*R v Tang* (2008) 237 CLR.
Acts of Parliament	(*Corporations Act 2001* (Cth) s 3)	*Corporations Act 2001* (Cth).
Delegated Legislation	(*Police Regulations 2003* (Vic) reg 6.	*Police Regulations 2003* (Vic) reg 6.
Bills	(Corporations Amendment Bill (No 1) 2005 (Cth)	Corporations Amendment Bill (No 1) 2005 (Cth).

Company Information

Material Type	Example of Citation within the Text	Reference List Example
Company Report	(Aspect Huntley 2009)	Aspect Huntley DatAnalysis 2009, *National Australia Bank Limited Company Report*. Available from: Aspect Huntley DatAnalysis. [20 May 2009].
Company Profile	(Datamonitor 2009)	Datamonitor 2009, *Wesfarmers Limited Company Profile*. Available from: Business Source Premier. [20 May 2009].
Financial Data	(Datastream 2009)	Datastream, 2009, *S&PASX200 daily index data 2000-2009*. Available from: Datastream. [20 May 2009].

Conference Papers & Proceedings

Material Type	Example of Citation	Reference List Example

	within the Text	
Conference Proceeding Paper: Print	(Riley 1992)	Riley, D 1992, 'Industrial relations in Australian education', in Contemporary Australasian industrial relations: *proceedings of the sixth AIRAANZ conference*, ed. D. Blackmur, AIRAANZ, Sydney, pp. 124-140.
Conference Proceeding Paper: Electronic	(Fan, Gordon & Pathak 2000)	Fan, W, Gordon, MD & Pathak, R 2000, 'Personalization of search engine services for effective retrieval and knowledge management', *Proceedings of the twenty-first international conference on information systems*, pp. 20-34. Available from: ACM Portal: ACM Digital Library. [24 June 2004].
Conference Proceeding Paper: Unpublished	(Brown & Caste 1990)	Brown, S & Caste, V 2004, 'Integrated obstacle detection framework'. Paper presented at the *IEEE Intelligent Vehicles Symposium*, IEEE, Detroit MI.

Newspapers

Material Type	Example of Citation within the Text	Reference List Example
Newspaper: Print	(Ionesco 2001)	Ionesco, J 2001, 'Federal election: new Chip in politics', *The Advertiser* 23 October, p. 10.
Newspaper: Electronic Database	(Meryment 2006)	Meryment, E 2006, 'Distaff winemakers raise a glass of their own to their own', *The Australian*, 7 October, p. 5. Available from: Factiva. [2 February 2007].
Newspaper: From a Website	(Hilts 1999)	Hilts, PJ 1999, 'In forcasting their emotions, most people flunk out', *The New York Times* 16 February. Available from <http://www.nytimes.com>. [19 February 2000].
Newspaper: No Author	(*The Sydney Morning Herald* 7 January 2011, p. 12)	Not required.

Multimedia

Material Type	Example of Citation within the Text	Reference List Example
Video	(Effective performance appraisals 1994)	*Effective performance appraisals* 1994, (video recording), Melbourne, Educational Media Australia.

Material Type	Example of Citation within the Text	Reference List Example
Television Programme	(Crystal 1993)	Crystal, L (executive producer) 1993, *The MacNeil/Lehrer news hour* (television broadcast) 11 October 1993, New York and Washington DC, Public Broadcasting Service.
Audio Podcast	(Van Nuys 2007)	Van Nuys, D (producer) 2007, 'The anatomy of a lobotomist [Show 84]', *Shrink Rap Radio*(podcast). Available from: <http://www.shrinkrapradio.com/>. [11 April 2007].
Video Podcast	(Kloft 2006)	Kloft, M (producer/director) 2006, The Nuremberg trials (motion picture), in M.Sameuls (executive producer), *American experience* (podcast). Available from: <http://www.pbs.org/wgbh/amex/rss/podcast_pb.xml>. [4 March 2006].
Music Track from an Album	(Shocked 1992)	Shocked, M 1992, 'Over the waterfall', on *Arkansas Traveller* (CD). New York, Polygram Music.
Video Blog Post	(Norton 2006)	Norton, R 2006, 'How to train a cat to operate a light switch' (video file). Available from: <http://www.youtube.com/watch?v=Vja83 KLQXZs>. [4 November 2006].

Standards & Patents

Material Type	Example of Citation within the Text	Reference List Example
Patent	(Cookson 1985)	Cookson, AH 1985, *Particle trap for compressed gas insulated transmission systems*, US Patent 4554399.
Standard: Retrieved From a Database	(Standards Australia 2008)	Standards Australia 2008, *Personal floatation devices - General requirements.* AS 4758.1-2008. Available from: Standards Australia Online. [1 December 2008].
Standard: Published	(Standards Australia/New Zealand Standard 1994)	Standards Australia 1994, *Information processing - text and office systems - office document architecture (ODA) and interchange format: part 10: formal specifications,*AS/NZS 3951.10:1994, Standards Australia, NSW.

CMO

Material Type	Example of Citation	Reference List Example

	within the Text	
CMO Article	(Jennings 1997)	Jennings, P 1997, 'The performance and competitive advantage of small firms: a management perspective', *International Small Business Journal*, vol. 15, no. 2, pp. 63-75. Available from: The University of Western Australia Library Course Materials Online. [1 September 2004].

Lecture Notes

Material Type	Example of Citation within the Text	Reference List Example
Lecture Notes	(Foster 2004)	Foster, T 2004, *Balance sheets*, lecture notes distributed in Financial Accounting 101 at The University of Western Australia, Crawley on 2 November 2005.

Theses

Material Type	Example of Citation within the Text	Reference List Example
Thesis: Unpublished	(Hos 2005)	Hos, JP 2005, *Mechanochemically synthesized nanomaterials for intermediate temperature solid oxide fuel cell membranes.* Ph.D thesis, University of Western Australia.
Thesis: Published	(May 2007)	May, B 2007, *A survey of radial velocities in the zodiacal dust cloud.* Bristol UK, Canopus Publishing.
Thesis: Retrieved From a Database	(Baril 2006)	Baril, M 2006, *A distributed conceptual model for stream salinity generation processes: a systematic data-based approach.* WU2006.0058. Available from: Australasian Digital Theses Program. [12 August 2008].

Personal Communication

Material Type	Example of Citation within the Text
Telephone Call, Interview, e-mail, etc.	*If the information you are referencing was obtained by a personal communication such as a telephone call, an interview or an email that fact is usually documented in the text and are not added to the reference list. If desired you can add the abbreviation* pers.comm. *to the reference.* When interviewed on 6 June 2008, Mr M Ward confirmed... Mr M Ward confirmed this by facsimile on 6 June 2008.

	It has been confirmed that he will be touring Australia in the middle of next year (Mr M Ward, 2008, pers. comm., 6 June).

Citing Information Someone Else has Cited

Material Type	Example of Citation within the Text	Reference List Example
Citing Information that Someone Else has Cited	(O'Reilly, cited in Byrne 2008)	In the reference list provide the details of the author who has done the citing.

A reference list: what it should look like?

Note: Please note the hanging indent for each reference makes the alphabetical sequence more obvious.

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Abbreviations

Standard abbreviations may be used in your citations. A list of appropriate abbreviations can be found below:

Ed./Eds.	editor/editors
ed.	edition
et al.	and others
no.	number
p./pp.	page/pages
para.	paragraph
pt.	part
rev.	revised
suppl.	supplement
Vol.	Volume (book)
vol.	volume (journal)

Other Sources of Information

Other sources of information

Note: This list of examples is in no way exhaustive. Only the most often-used types of references are listed here. Refer to the following publications for more information on citing references:

RMIT University, Library, *Harvard Referencing*. Available from: <http://mams.rmit.edu.au/2nkrhwuswrpq.rtf> [26 July 2012].

Anglia Ruskin University, University Library, *Harvard System of referencing Guide.* Available from <http://libweb.anglia.ac.uk/referencing/files/Harvard_referencing_2011.pdf> [26 July 2012]

The University of New South Wales, The Learning Centre, *Harvard Referencing*. Available from <http://www.lc.unsw.edu.au/olib.html> [30 July 2012]

University of Southern Queensland, Library, *Harvard AGPS Referencing Guide*. Available from <http://www.usq.edu.au/library/help/referencing/harvard.htm> [30 July 2012]

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