HiLCoE

School of Computer Science & Technology

Graduate Programme Research Office

Research Seminar Guideline

January 2021

1. Objective

The objective of the research seminar course is to develop the research skills of students. It helps to develop skills in text processing, searching for scholarly information, and presenting findings in a scientific way.

2. Detailed Activities

A student wishing to do a research seminar course must first select a topic, write a synopsis, and submit to the Graduate Programme Research Office. The topic shall be an emerging business/social problem that demands technological intervention, which may, but not necessarily, focus on local problems. Once approved, the student is required to do the following:

- Conduct literature survey on the available state-of-the-art technologies and best practices of similar problems,
- Conduct technological comparative analyses,
- Come up with a detailed recommendation on the basis of the comparative analyses, and
- Write a scientific seminar report in a publishable format.

3. Seminar Report Organization

The report may contain the following sections and each is described afterwards.

- Cover page
- Abstract
- Table of Contents
- Introduction
- Objectives
- Literature Review
- Comparative analysis/Detailed recommendation
- Summary/Conclusion
- References
- Annexes, if any

3.1 Cover Page

The cover page must be as follows. It has no page number.

HiLCoE

School of Computer Science & Technology

Research Seminar Course

Title of the Seminar

Full name of the student

Date

3.2 Abstract

An abstract is a brief, comprehensive summary of the contents of the report. It gives readers an overview of all the key ideas presented.

The abstract bridges the gap between the title and the main body and thus should be brief and informative.

Keywords ranging from five to seven should be listed at the end of the abstract.

The Abstract page has no page number.

3.3 Table of Contents

Table of contents must be generated automatically and not manually. The title (i.e., Table of Contents) must be centered.

If there are many tables, figures, algorithms, and acronyms/abbreviations, then a "List of Tables", "List of Figures", "List of Algorithms", and "Acronyms/Abbreviations" should be included on separate pages after the Table of Contents page. Similar to Table of Contents, List of Tables, List of Figures, and List of Algorithms must all be automatically generated and the page titles must be centered.

Title page and abstract must not be included in the Table of Contents.

Page numbering starts (page number i) on the first page of Table of Contents using lower case Roman numerals. Use proper section breaks so that each section can be formatted separately.

Use proper indentation for sub-sections. Also use hanging indent if a title flows to the second line.

3.4 Introduction

This section should provide background and context, clearly identifying the topic area. It should show how the proposed research fits into what is already known and contributes to knowledge and the production of new products, services, methods or techniques in the subject area.

Describe the background of the problem, giving a measure of its magnitude (how widespread and important it is). Give summary of its significance, how the technological comparative analysis will be conducted, how the data (if any) will be collected, how it will be analyzed, and what results (possible outcomes) are expected.

It should provide a clear and concise description of the central problem to be investigated and the questions to be answered.

Page numbering starts (page number 1) on the first page of the Introduction section.

3.5 Objectives

Clearly outline the general and specific objectives of the wok. The general objective should outline the ultimate goal of the research in one sentence. List the specific objectives in order to achieve the general objective. The objectives should be specific and realistic in terms of capacity, resources, and time.

- Note: General and specific objectives do not have section numbers and they do not appear in the table of contents page.

3.6 Literature Review

The review of literature represents the researcher's level of knowledge in the area of his/her proposed topic of research. By reviewing literature, this section should show what has been done and proposed by others mainly on the type and nature of the technologies and their strengths and limitations.

The domain problem should be clearly stated and it must be contextualized.

3.7 Comparative Analysis/Detailed Recommendation

Based on the literature review, this section should clearly show and narrate how the process and results of the comparative analysis is done and clearly show the how and why of the recommendation of your work.

Describe very briefly the technologies (tools, programming languages, etc) to be used in the recommendation and why they were selected.

In some cases, there may be a need for conducting interview/Focus Group Discussion (FGD) or gathering data through questionnaire. If that is the case, proper statistical methods have to be followed in deciding the number of interviewees/FGD participants/questionnaire respondents, the method of selection of interviewees/FGD participants/questionnaire respondents, and the method of analysis. Interview/FGD guides and/or questionnaires have to be annexed to the report. The analysis thereof can be reported in a separate section.

3.8 Summary/Conclusion

Provide a summary of the work by outlining the major findings. Indicate how the general and specific objectives of the seminar are addressed. No new material should be included here.

3.9 References

Every reference cited in the text must appear in the reference list. Similarly, all entries in the reference list must be cited in the text at least once. The following are examples of citations.

This may be true as pointed out in [2].

Rabinovich and Spatscheck [1] concluded that …

As presented in Sen *et al.* [4], a mobile entity is … (Use *et al.* only if the authors are more than two.)

The authors in [6] argue that …

References have two major objectives.

- Firstly, the author is acknowledging the works of others thereby avoiding **plagiarism**. Copying text word by word from another source must be avoided, which otherwise is plagiarism that leads to an automatic rejection of a report.
- Secondly, readers who need more information can access the referred material. For this purpose, all references must be traceable. Formats vary to make a reference traceable based on the type of reference as follows.
  - An entry for a book usually contains the following information to be traceable: author(s), title, publisher, date of publication.

- An entry for a journal or a conference proceeding paper usually contains: author(s), article title, journal or conference title, volume & number, pages, date of publication
- For information obtained from the Web, include the URL and the date when the site was last accessed.

Different authors/institutions use different styles for citation. The commonly used style in the Science and Engineering fields and the one adopted by HiLCoE is the one by the Institute of Electrical and Electronics Engineers (IEEE) where a citation number is enclosed within square brackets and the reference list is arranged by the order of citation in the report, not by alphabetical order. The following are example styles for a book, a journal paper, a conference proceeding, and a Web reference, respectively.

[1] J. Watkinson, *The MPEG Handbook*, Focal Press, Oxford, 2001.

[2] R. J. Flynn and W. H. Tetzlaff, "Multimedia - An introduction," *IBM Journal of Research and Development*, Vol. 42, No. 2, 1998, pp. 165-176.

[3] C.-H. Chi, Y. Cao, and T. Luo, "Scalable Multimedia Content Delivery on Internet," in *Proceedings of the IEEE International Conference on Multimedia*, Lusanne, Switzerland, August 2002.

[4] Zona Research, "The Economic Impacts of Web Site Download Speeds1999, retrieved from http://also.co.uk/docs/speed.pdf, Last accessed on June 10, 2011.

- Note: References has no chapter/section number.

3.10 Annexes

These include detailed information that cannot be put within the body of the report.

- Note: Annexes have no chapter/section numbers. Each Annex has to be numbered as "Annex A", "Annex B", etc.

4. Report Format

- The report must be typed on A4 size paper.
- The number of pages shall be between 12 and 15 (excluding the cover page, abstract page, table of contents page, references, and annexes)
- 1 inch margin for all (top, bottom, left, right)
- 1.3 line spacing; 3 points before and after the paragraph; justified

- 12 point New Times Roman for the body text and bigger fonts (increment by 1) for titles and subtitles depending on the depth (hierarchy) of titles you have
- All pages shall be numbered consecutively in the bottom, center position. The pages must be numbered starting from the introduction page
- Spelling and major grammatical errors may lead to mark deductions

5. Report Submission

Report submission is a two step process.

Step 1: The student submits a draft report (supposed to be final and has to contain all sections) in soft copy to the reviewer through e-mail. The file shall be named as **student's full name-Draft**. Then the reviewer will critically assess the report and send a detailed report and comments to the student as feedback.

Step 2: The student incorporates all comments and suggestions of the reviewer and submits the final report in soft copy to the reviewer through e-mail. The file shall be named as **student's full name-Final.** The student shall also submit a hard copy of the report to HiLCoE Graduate Programme Research Office.

Soft copies shall be submitted **in Microsoft Word format only**.

6. Grading

The course will be evaluated based on the following points.

Item	**Mark (%)**
Maturity of problem formulation and level of understanding of the problem	10
Incorporation of established knowledge and literature coverage	35
Implementation of scientific techniques, comparative analysis, data collection/presentation and interpretation	30
Report writing as outlined in this guideline	25
Total	**100**

Grading Scheme

- Excellent (≥ 85%)
- Very Good (75-84%)
- Good (65-74%)
- Satisfactory (50 - 64%)
- Fail (<50)

7. Some tips in using Tables and Figures

Each figure and table must be numbered separately and labeled. The table/figure is numbered using section number, a full stop, and serial number, such as 2.1, 3.4, etc. The labels should be informative. The style may vary. Pick a style that you think is best from books or papers. A table or figure that is taken from a different source requires a citation. Put the citation in the body of the report and not on the labels. See the following example on citations of tables from a different source (which also applies for figures).

The position of labels must be below the figure for figures and for tables above the table and both must be centered. Each figure and table must be referred in the body of the report at least once. The following are examples on how to refer to tables and figures.

> Table 7.1 [23] shows so and so. or As shown in Table 7.1 [23], [put here any conclusions]. Figure 7.1 shows so and so. or As shown in Figure 7.1, ...

Overcrowding tables with lines should be avoided. Horizontal lines should be included only for the heading and at the end of the table. If there is no row of totals or something similar, use only a single line for the bottom of the last row. If a table spans more than one page "Repeat Heading Rows". The following examples demonstrate the idea.

Table 7.1: List of Courses to be offered in the first Term

Course Code	Course Title	Credit Hours
CS601	Research Methodology	3
CS662	Advanced Computer Networks	4
CS764	Distributed Computing	4
Total		**11**

Table 7.2: Nationally set Annual intake Targets from 2001 to 2005

Year	**2001**	**2002**	**2003**	**2003**	**2005**
Annual Intake - ICT	6, 000	9, 000	11, 000	11, 000	11, 000
Annual Intake - All	90, 000	110, 000	110, 000	110, 000	110, 000
% ICT Intake	**6.67**	**8.18**	**10**	**10**	**10**

Figure 7.1: Logo of HiLCoE