

IE4100R BEng Dissertation (Final Year Project)

Module Outline

Modular Credit	8 MCs
Hours per Week	10
Duration	2 Semesters
Pre-requisite	ISE Stage 4 Standing
Preclusion	IE4102
Module Coordinator	A/P Ye Zhisheng (iseyeh@nus.edu.sg)
Module Administrator	Miss Yee Shuh Huey (isebox1@nus.edu.sg)

IMPORTANT INFORMATION

The Module Outline (this document) gives the student important information about the module, guidelines, assessments, schedules and project allowance.

MODULE DESCRIPTION

The objective of the module is to give students exposure to research. In this module, each student is assigned to a research project that requires application of industrial and systems engineering concepts. The module provides the opportunity for students to conduct self study by reviewing literature, defining a problem, analyzing the problem critically, conducting design of experiments, and recommending solutions. It also enables students to improve their communication skills through technical report writing and oral presentation.

IMPORTANT DOCUMENTS

Please note that students are to submit the following documents on the stated submission dates to the ISEM Department. Late submission will not be accepted.

1. Transport Claim Form

Students may claim for travelling expenses for the purpose of research for the project. Claims must be accompanied by receipts and submitted to the Department within 30 days from the date of receipt(s).

2. Request for Payment Form (RFP)

Students may claim purchases or consumables for the purpose of research for the project. Claims must be accompanied by receipts and submitted to the Department within 30 days from the date of receipt(s).

PROJECT ALLOWANCE

Students are allocated a maximum sum of **S\$100 each** for local transport claims and reimbursements for materials used during the research and for the completion of the project. *Please attach receipts to the forms and submit your claims within 30 days from the date of receipt (s).*

Students may claim for expenses or consumables, such as photocopying of journal papers, surveys forms, mailing, etc. However, students **cannot** claim expense on the binding of thesis, making copies of thesis and making draft copies of thesis for examination. These costs should be borne by the students.

Other costs and expenses not stated here will be dealt with on a case by case basis and is subjected to the Department's approval. The Department's decision is final. The Department may request for items to be returned at the end of the project.

Guidelines for FYP claims:

1. Claim for Transport

Students may claim for travelling expenses incurred for the journey made from NUS to location of research and then back to NUS. Students may not claim for travelling expenses incurred during routine journeys between their homes and NUS. Note that claims can be made only for trips to companies for meetings and carrying out project works.

The optimal route and mode of transport should be used so that expenditure may be kept to a minimum while allowing students to perform their research effectively and efficiently. When making a claim for transport, the claimant should state precisely the time and place of the start and finish of each trip; and ensure that all street names are stated in the Transport Claim form.

- a) Students may claim according to bus fare or MRT fare rates if they use public transport. No receipt is required for travel by bus and MRT.
- b) Students may be reimbursed for taxi fares for a journey if the Supervisor is satisfied that travelling by taxi will result in greater efficiency and effectiveness. When it is deemed appropriate by the Supervisor for two or more students working on related projects to make the same trip by taxi, they are expected to travel together. Therefore, only one taxi receipt can be submitted per trip unless there are more than four students making the trip. Please submit claim to the ISEM Department within 30 days from the date of receipt(s). *Note that booking fee for taxi is not claimable.*

2. Claim for Consumables

Students may claim for purchase of materials used during the research and for the presentation of the project. Please attach receipts to the Request for Payment form and submit to the Department within 30 days from the date of receipt(s).

Students may claim for expenses on consumables such as surveys forms, postage, etc. Printed materials should be solely for the purpose of research for the project. However, students cannot claim expenses on the printing and binding of FYP thesis, making copies of report or thesis and making draft copies of thesis for examination. The budget is meant to help the students to defray the costs of conducting research for the project and does not include cost of putting up the thesis report.

Please be informed that claims are only for items which are required for research and to be used for the duration of the project. All claims are subjected to the Department's approval. Co-payment or partial claim is not permitted. Items which can be re-used or re-cycled are to be returned to the ISEM Department at the end of the project.

EVALUATION OF PROJECTS

The assessment of the dissertation comprises three parts:

1. **Research Methodology Seminar (5%)**

All students are required to attend 5 hours of lecture in research methodology.

2. **Progress Report (10%)**

Students are required to submit a soft copy of the progress report via the Student Project Administration System for interim grading. Hard copy is not required unless it is requested by the supervisor.

The progress report must be typewritten and double-spaced, with ample margins. The length of report should not exceed ten A4 pages, excluding appendices. It should include a brief description of the project, literature review, progress made to-date and future direction of study.

Failure to submit the progress report by the given deadline may result in a penalty and the student may be barred from the final assessment.

3. **Final Assessment (85%)**

The final assessment of the dissertation includes the following items:

- (i) working attitude (15%; awarded by supervisor(s))
- (ii) research methodology (15%)
- (iii) project achievement (20%)
- (iv) report writing (20%)
- (v) final oral presentation (15%)

Length of the thesis

The main body of the thesis (excluding appendices, if any) should not exceed **THIRTY TWO (32)** A4 pages, font size 12, Times New Roman and double spaced.

➤ **Draft Report**

A copy of the draft report in a standard report format must be submitted to the supervisor(s) for approval by the given deadline.

The report should be concise and follow a standard dissertation style.

➤ **Thesis (Final Report)**

A final report which incorporates all the corrections to the draft report must be re-submitted (together with the original version of the examined draft report if required by the supervisor(s)) to the supervisor(s) for vetting.

Upon approval, students must upload the final report to the Student Project Administration System for oral assessment and final grading. Hard copy is not required unless it is requested by the supervisor/examiner.

Failure to submit the final report by the given deadline will result in a penalty (i.e. deduction of marks) unless with valid reason.

➤ **Final Oral Presentation**

Each student is given 20 minutes for the presentation of the project and another 10 minutes for question and answer. Students are advised to adhere strictly to the time limit. Failure to do so may result in penalty. A LCD projector and a PC/notebook will be provided in all examination rooms. Students are encouraged to bring their own notebook but they must ensure that it is compatible with the projector provided.

➤ **Submission of Electronic Copy**

Students are required to submit a soft copy of the final report in pdf format, presentation slides and other relevant materials (if any) to the Department for archival purposes. Please name the files as follow:

- Your full name_FinalReport (eg. TanLingLing_FinalReport)
- Your full name_PPT
- Your full name_OtherMaterials

Department reserves the right to withhold the student's exam results if the student fails to submit the electronic copy by the given deadline.

MODULE DISCLOSURE

The final report would contain information such as the background of the company, problem description, motivation, methodologies/approaches, comparison of design alternatives and recommendations.

As the work may contain sensitive information, you are required to seek the relevant authorities for approval regarding the information contained in the thesis prior to submission.

FYP TIMELINE

Description	Deadline/Timeline
Submission of Progress Report	Monday of Week 10 of the first semester
Submission of Draft Report to supervisor(s) for approval	Monday of Week 4 of the second semester
Submission of Thesis (Final Report) for oral assessment and final grading.	Monday of Week 7 of the second semester
Final Oral Presentation	Week 8 of the second semester
Submission of Electronic Copy	Monday of Week 10 of the second semester

- The schedule is fixed unless otherwise advised by the Department.
- If a date falls on a public holiday, the deadline is deferred to the next working day.

DEPARTMENT OF INDUSTRIAL SYSTEMS ENGINEERING & MANAGEMENT

Guidelines for the Preparation of IE4100R BEng Dissertation Report

1. OVERALL FORMAT

Length Limit

The body of the report shall not exceed 32 A4 pages, typewritten and double-spaced. Additional materials such as figures, tables, computer programs etc may be included in the appendices. Please consult your project supervisor if you are unsure which materials you should include in the body of the report and appendices.

Margin, Typeface and Line Spacing

The text should have a font size of 12 points. The left-hand margin should be 37mm and the remaining three sides should be 25mm each. The entire report should be in the same typeface. Times New Roman is recommended.

Heading

The chapter titles, headings and sub-headings may be of larger font sizes up to 18 points.

2. ORGANIZATION

The report may be arranged in the following order:

- Title Page
- Summary
- Acknowledgement
- Table of Contents
- List of Figures
- List of Tables
- Body of the Report
- List of References
- Appendices

The cover and title page should carry only the following information:

COVER in BLOCK LETTERS not exceeding 16 points

<p>IE4100R BENG DISSERTATION</p> <p>(DISSERTATION TITLE)</p> <p>(NAME OF STUDENT)</p> <p>DEPARTMENT OF INDUSTRIAL SYSTEMS ENGINEERING AND MANAGEMENT</p> <p>NATIONAL UNIVERSITY OF SINGAPORE</p> <p>(ACADEMIC YEAR)</p>

TITLE PAGE

<p>(DISSERTATION TITLE)</p> <p>Submitted by (Name of student)</p> <p>Department of Industrial Systems Engineering and Management</p> <p>In partial fulfillment of the requirements for the Degree of Bachelor of Engineering National University of Singapore</p> <p>(Academic Year)</p>
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Summary

The summary (not exceeding two pages) should be an informative précis of the entire work as an independent unit or a mini-report. It represents the entire report and allows the reader to understand the report's significant information without going any further. Usually, the summary includes statements of (a) purpose and problem of the report, (b) the important facts on which the conclusion is based, (c) the conclusion, and (d) the recommendation.

Acknowledgement

Assistance in the preparation of the report or in carrying out the reported work should be fully acknowledged.

Body of the Report

The report body should be suitably divided into chapters. Usually, it may consist of Introduction, Literature Review, Methodology, Results, Discussion, Conclusion and Recommendation.

List of References

A list of bibliographical references should be provided when the report contains information from other sources. The references should be numbered in the order in which they are cited in the text. The numbers are placed between square brackets on the line and collected in numerical sequence in the list of references.

Alternatively, citations may be made using the last name of the author followed by the year of publication (both authors when only two; first author plus et al. when more than two). For two or more papers published by the same author(s) in the same year, letter a, b, c etc. should be added to the year. The references should be arranged in alphabetical order by authors' names and thereafter chronologically by the authors' name combinations.

3. NUMERATION

Pages

All pages except the Title Page must be paginated. The page numbers must always appear in either the lower or upper right-hand corner. Preliminary pages (introductory sections starting from Summary to List of Tables) may be numbered with small Roman numerals, beginning with i. Body of the report starts from the first page of Chapter 1 and is numbered in Arabic numerals sequentially through the last page of the report, i.e., Appendices.

Chapters

Consecutive numbering should be used for chapters of the report. Chapter 1 is usually the Introduction.

Sections/sub-sections

For sections within a chapter, the style is as follows: 1.1 denotes the main section, 1.1.1 denotes the first sub-section 1.1 etc.

Appendices

Use consecutive letters (Appendix A, B, ...) and a heading to identify each appendix. Sections and sub-sections within an appendix are numbered as A.1, A.1.1 etc.

Illustrations

Illustrations (figures, tables, diagrams, line drawings, graphs and photographs) should be numbered in the order in which reference is made to them in each Chapter/Appendix, e.g., Figure 2.2 refers to the second illustration in Chapter 2.