



Final Year Project Guidelines

Department of Civil & Environmental Engineering



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Introduction

The Final Year Project (FYP) course (CIVE 501-502) was introduced in the Civil Engineering curriculum since AY2004-05 to prepare students for engineering practice. It is an important undertaking which requires the synthesis of the knowledge and skills acquired in earlier course work, some creativity, and original thinking. It is considered as the capstone of your undergraduate studies.

The final year project allows students to deepen their knowledge and specialize in an area/topic of their choice and in which they can prove themselves. The FYP experience entails long hours of work, commitment and diligence. It is an opportunity for developing analytical and problem solving skills in addition to other skills that cannot be taught in classrooms.

The FYP course was designed to satisfy the program outcomes of the Civil Engineering curriculum in line with the Accreditation Board for Engineering and Technology (ABET) recommendations. These program outcomes are highlighted in the list below:

- a) An ability to apply knowledge of mathematics, science, and engineering.
- b) An ability to identify, formulate, and solve engineering problems.
- c) An ability to design and conduct experiments, as well as to analyze and interpret data.
- d) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- e) An ability to use the techniques, skills, and modern tools necessary for engineering practice.
- f) The broad education necessary to understand the impact of engineering solutions in a local and global, economic, environmental, and societal context.
- g) An ability to function on multidisciplinary teams
- h) An ability to communicate effectively.
- i) An understanding of professional and ethical responsibility.
- j) Knowledge of contemporary issues.
- k) A recognition of the need for, and an ability to engage in, life-long learning
- l) Some experience in engineering practice or undergraduate research.

The final year project will instill in students the importance of teamwork, expose them to multi-disciplinary work and real world engineering where social, economical, environmental, political, ethical, safety, sustainability (among others) constraints will have to be also taken into consideration. Students will have the opportunity to work on and improve their communication skills (written and oral). The final year project is the largest single piece of work that prospective employers will most likely be interested in during a job interview.

Project Selection

The final year project is selected based on ideas that are provided by the students and approved by the department. The topics for the academic year 2009-2010 should involve at least two disciplines of Civil Engineering or of a related field, e.g. Geotechnical and Environmental, Structural and Mechanical. Projects should be of a practical nature and involve an engineering design component and require a problem formulation, analysis, and critical evaluation. All projects/proposals should have a clear objective and a range of feasible solutions.

Selection Procedure

By the end of the Spring Semester of the 3rd year, Students are asked to form groups of three to four and submit a brief outline of 2 prioritized topics which include a description of the scope and objective of the proposed topics. In addition, the list submitted by the student groups should include a tentative list of 4th yr/elective courses which are associated with proposed topic(s) along with a list of relevant associated analysis/design software. The Department selects one topic for each group, and the group is then asked to submit a detailed formal proposal as outlined in the provided guidelines.

Deliverables Timeline and Grading

Fall semester

- **October 23, 2009:** Formal FYP Proposal (10%)
- **November 13, 2009:** Literature Review Report (10%)
- **December 4, 2009:** Identification of methodology and Constraints (environmental, economical, social, political, ethical, etc.) (20%)
- **December 21, 2009:** Report on completion of training on software/assignment (20%)
- **January 27, 2010:** Inception Report (40%)

Spring semester

- **March 5, 2010:** A summary report on data collection (10%)
- **March 26, 2010:** Progress report on design aspects related to the project (10%)
- **April 16, 2010:** Complete design report (20%)
- **April 30, 2010:** A summary report on Impact Assessment (environmental, economic, social, etc) (10%)
- **May 10, 2010:** Submission of Final FYP report (30%)
- **May 12, 2010:** Poster presentation (bonus grade)
- **May 14, 2010:** Oral presentation (20%)

Remarks:

- (a) Weekly or bi-weekly meetings will be held between the Faculty member coordinating the course and each individual group. Other faculty members will attend the meeting to provide specialty/specific feedback and evaluation when needed.
- (b) Late submission of any of the deliverables above will be subjected to 5% penalty per day.
- (c) Attendance of training sessions on the use of software is mandatory. Students who absent themselves without valid excuse will be penalized.

Final Project Report Guidelines

The project report should be of professional quality. Students are expected to present their FYP reports in a manner as would be required in the profession with correct spelling, grammar, and syntax.

The report should be typed using a word processor and printed on A4 paper with a 3 cm margin at the left hand side and 2.5 cm margin at the top, bottom and the right hand side. The text must be in 11 or 12-point type and the headings in 14-point type with 1.5 line spacing. The headings are numbered according to the decimal system. Each main heading is a whole number and the sub-heading is numbered as a decimal of that. The font should be Times New Roman, Arial or similar. Each page of the report should be numbered in the top or bottom right-hand corner. The title page must include the title of the project, the authors' name, date and place.

All graphs should be produced using graphics software. The figures must at least be of the size of half a page and must have a caption and labels. Each table must have a title, and all columns and rows should have appropriate headings. All figures and tables must be cited in the text.

The computations or solution procedures should be done or outlined in orderly steps with all assumptions clearly stated and their source given. All calculations should be reproducible. All units should be clearly indicated. Use of computer programs such as EXCEL or MATLAB is encouraged.

The reference list should be explicit with the author's name, title, publisher and date. References should be correctly cited in the text by giving the authors' name and date of publication [e.g. *Roberson & Crowe*, 1995]. Acknowledgments should be duly conferred and copied material should be duly credited.

The structure and the content of the inception and final reports are outlined below.

Inception Report

The Inception Report should include

Final Year Project

- Description of the problem
- Literature review
- Proposed methodology
- Identification of design/project constraints (environmental, economical, social, political, ethical, etc.)
- Work plan

The Structure of the inception report should be as follows:

- Title page
- Table of Contents
- List of Figures
- List of Tables
- Summary
- Introduction & background material
- Literature survey
- Methodology
- Design/Project Constraints
- Implementation plan
- Conclusion
- Acknowledgments.
- References: Books, papers, lecture notes, ... etc
- Appendices: Relevant information

Final Report

The final report should include:

- Cover & Title Page
- Table of Contents
- List of Figures
- List of Tables
- Executive Summary
- Introduction
- Literature survey
- Underlying engineering principles
- Solution methodology
- Design/Project Constraints
- Data collection
- Implementation and evaluation
- Discussion and analysis
- Impact assessment
- Concluding remarks: A critical appraisal of the project
- Acknowledgments
- References: Books, papers, lecture notes, ... etc
- Appendices: Relevant information listing all support material

The length of the final report should not exceed 20 pages excluding the appendices. A soft copy of the final report should be attached to the hard copy version.

Grading

Final Report

The grading of the final report is based on the format, the content, the originality, and the professional appearance. The distribution of the grade is as follows:

- | | |
|--|-----|
| ▪ Structure & Format: Cover Page, Figure Captions, Table Titles and References | 10% |
| ▪ Background Material: Introduction and Literature Survey | 20% |
| ▪ Methodology and Constraints: Accuracy and Completeness | 20% |
| ▪ Analysis/Design & Discussion including Conclusion | 30% |
| ▪ Presentation & Aesthetic: Figures, Tables and Overall Appearance | 20% |

Late submissions are penalized at 5% per weekday.

Oral Presentation

The oral presentation should be conducted using multimedia tools (e.g. Powerpoint). Fifteen minutes are allocated for each oral presentation followed by up to five minutes of questions & answers. All participants of the project must take part in the oral presentation. The oral presentation session will be open to the public.

The oral presentation is graded as follows:

- | | |
|---------------------------------|-----|
| ▪ Structure | 20% |
| ▪ Background Material | 20% |
| ▪ Technical Content | 20% |
| ▪ Professional & Aesthetic look | 20% |
| ▪ Elocution | 20% |