

## DESIGN CONTENT FOR CE 431-432

CE 431: Complete design for one option

Project proposals; Review of proposals

Progress reports; Formal presentations; written report

CE 432: Complete alternate solutions of projects

Progress reports; Formal presentation of projects; written report

Design Content: 100%. This is a two semester four credit hour capstone design course. The projects are open-ended real life problems requiring independent work by the students. The students consult with practicing engineers in the private sector, Federal Government agencies - such as the Army Corps of Engineers, and the city of Memphis and Shelby County Government agencies to arrive at various design projects, and getting help in the collection of data, analysis, synthesis and design. Thus, the problems are real life problems with constraints. Students write project proposals consisting of problem statements, objectives and criteria, specifications for the project, design components and a projected schedule of completion. Civil Engineering faculty reviews the proposals and approves them if satisfactory. The students select their own advisors and practitioners and work under them until completion of the project.

Students are required to give oral and written project progress reports as required by the course instructor and meet with the practicing engineer whenever needed. **Students submit a written report at the end of the first semester summarizing all the work completed during the first semester for one design option of their projects.**

Students continue to work on the same project during the second semester arriving at alternate solutions, and select the most economical solution to the problem on hand. Formal oral presentations to the entire class are required. A final written report is also required of all students. The report must indicate design criteria, objectives of the project, analysis and synthesis accomplished for the project, economic factors if any considered, alternate solutions, various components of the design process, description of any special construction involved, any testing and related evaluation of those tests, any computer simulation carried out for the project, description of the computer programs used, and other relevant data connected with the project. Students are required to have their report reviewed by the **Practitioner** and get their **signature** in the final report. All final design reports are bound and placed in the Main Library of the University.

Meeting with Project Advisors and Practitioners: Students are required to discuss the progress of your projects with your advisors as often as needed. Students are required to **submit progress reports** in writing as given in the schedule.

General Guidelines for Grading:

1. Timeliness on all submissions
  - Proposal
  - Progress reports
  - Final report
  - Presentation folder (slides)
  - Electronic version of final report
2. Meeting advisor's requirements
  - Content
  - Thoroughness (attention to details)
3. Meeting practitioner's requirements
4. Sketches/Tables/Figures
  - Number them and refer to them within the report
5. Following report format
6. Attendance in classes

# CE 431/432 Design Project

## Report Format & Details

### General:

Report is to be typed, minimum one inch margin on all sides.

Preferred Spacing - 1 ½ .

Figures and graphs must be professional quality, machine generated, numbered, caption

or title spelled out, and MUST be referred to in the main report. Same idea for

Tables.

Drawings may be hand drawn provided proper drawing instruments are used!

All large drawings may be either reduced to 8 ½ X 11 size or fold them nicely and keep

them in a packet!

Symbols/variables - define them as they appear the first time in your report; preferably

give a list of symbols & meanings after the tables & figures.

Computer software used - give a short narrative when you use it for the first time - what

source? Name of the program, etc.

**Final reports are NOT to be stapled; submit them in loose form so the library can bind them.**

Report must be concise and precise. Good grammar, syntax, and correct spelling are

required throughout the report.

Every page has to be numbered including the Appendix. You may use a different

numbering system for the Appendix. Make sure that you refer to the Appendix in your main report.

Try to keep the main report uncluttered. If you have design of one item for different

situations, may not be good to show all design calculations in the main report.

Show one design in the main report and use a Table or keep the rest in the

Appendix.

Have your preliminary report corrected by your academic advisor & practitioner before

preparing the final report.

Along with the final report, please bring the signed (by your practitioner) evaluation

form.

Make sure that your practitioner signs the signature page after  
he fills up the evaluation  
form for the written report.

CE 431/432 Design Projects in CEE

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**The final report is a formal report and must include all or most of the following:**

1. Title page (use a standard format) must contain project title, course number & name, department & university name & address.
2. **Transmittal letter (addressed to your project advisor - Formal business letter)**
3. Signature page (academic advisor & practitioner).
4. **Executive summary**
4. Table of contents with page numbers
5. List of figures and tables.
6. Description of your project.
7. Identification of design constraints. List & discuss.
8. Identification of alternate designs; design criteria, and explain each.
9. Description/analysis/design of each alternate.
  - a. Include diagrams as many as necessary so as to be able to follow your designs.
  - b. Identify and list assumptions; identify data source for the project and list data.
  - c. Give details of analysis and results.
  - d. Give final sketches of designed items.
10. Cost estimates and narrative on the final chosen alternate design.
11. Identification of references.
13. Appendix.
14. Acknowledgements.

[Sample Cover Page]  
Title of Project

Submitted in partial fulfillment of the requirements of CE  
315/431/432 Design Project  
Spring 2007

BY  
Smiling Face

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Christian Brothers University  
650 East Parkway South  
Memphis, TN, 38104

(Page 2 - signature page)

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Dr. Feel Good, Ph.D., P.E.,  
Faculty Advisor  
Professor of Civil & Environmental Engineering  
Christian Brothers University  
650 East Parkway South  
Memphis, TN, 38104

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Mr. Know It All, P.E.,  
ABC Consulting Engineers  
1000 Big Street  
Memphis, TN 38104

## CE 432 Design Project - Evaluation of a Written Report

Date: \_\_\_\_\_

Semester: \_\_\_\_\_

Name: \_\_\_\_\_

Topic: \_\_\_\_\_

<b>Factors</b>	5	4	3	2	1	Comments
1) Discussion of problem (identification of purpose & goal)						
2) Discussion of the constraints						
3) Discussion of alternate designs						
4) Figures & charts are referred in the main report						
5) Typical Engineering Report						
Spelling						
Grammar						
Use of subheadings						
References						
Quality of writing						
6) Figures & drawings done by use of a software						
Enough details						
Attached it properly						
7) Safety issues discussed						
8) Creativity in design						
9) Environmental Impact						

addressed						
10) Economic considerations						
11) Reasoning						
12) Critical thinking						
13) Problem solving						
14) Judgment						
15) Overall Quality						

**Rating:** 5=Excellent; 4=very good; 3=satisfactory; 2=below average; 1=poor

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Signature of Practitioner  
grade

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Suggested