

IE327 - Introduction to Work Design

Lab Case Studies

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Introduction

- Instructor Information

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- Lab Structure

- The lab will be structured as though students work for independent consulting firms.
 - Each firm will consist of four students.
 - Each group will develop a name for the firm that will be used on all reports. You can also develop a logo if desired.
 - Students will complete all Case Studies with their firms (with the exception of Case Study #10 - Time Study).

- Lab Meetings (all sections meet in 235 Leonhard)

- Section 1: Monday 3:35-5:30 PM
 - Section 2: Tuesday 2:30-4:25 PM

Lab & Grading Policies

- Lab Policies

- **Lab attendance is mandatory. Attendance will always be taken. The attendance sheets serve as a record if any questions arise later.**
- Excusable and foreseeable absences (religious observances, job interviews, school related trips, and etc.) should be discussed with the TA **prior** to missing lab. Emergency or unforeseeable absences (sickness, family emergency, etc.) should be discussed with the TA as soon as possible. Some labs will need to be made up to receive credit (only when related to an excused absence). There will be no make-ups for unexcused absences.
- Be on time for lab. The lab will be discussed at the beginning of each class and tardiness will reduce the amount of time available for the lab. I will not start lab until a majority of each group is present (this may delay the start of lab if a whole group is not there on time).
- During lab time, you are expected to work and contribute in your group on the lab. Working on other assignments will not be tolerated.
- Please pick up after yourself. Do not leave behind scrap paper, newspaper, lab equipment, etc. Return all lab equipment and manuals to their proper place upon completion.
- This course has eleven Case Study Lab Activities that require either the completion of a **Form** (called mini-cases, worth 2%) or the writing of a short **Lab Report** (called maxi-cases, worth 5%)
- The mini-case studies are due at the end of the lab session. Maxi-case studies require a report in which students will have one week to complete. The reports are due at the **beginning** of the next lab session (unless otherwise noted). Each group will turn in only **one** report. Print your reports **before** coming to lab.

- Grading Policy

- Lab is worth 40% of your grade.
- The TA will grade homework and Case Study reports. The instructor will grade exams.
- Refer to the "Laboratory Report Writing Guide" and "Laboratory & Project Evaluation Form" for further information regarding how Case Study reports will be graded. The TA will grade the reports based on adherence to format guidelines, completed deliverables (as stated in each Case Study handout), and proper writing techniques.
- Late homework and labs will not be accepted.
- Appeals to individual homework or lab grades must be made to the TA within one week. The TA may re-grade the entire assignment. Also, the TA will not accept appeals based on grading comparisons.

- **Any rules or other grading policies established in the class syllabus also apply.**

Case Study Writing Guide

Please type your report and staple in the upper left-hand corner. Do not otherwise bind the report or use report covers. Include the name of the case study, section, all group members and the date on a cover sheet. The report will include the following sections. Overall length should not exceed 3-4 pages, plus tables and figures.

Your completed Lab Report will be evaluated and graded by the instructor using this Case Study Evaluation Form.

- Title Page (3 pts)
Include the report title, all group members, section number, and the date. This title page serves as the cover sheet for the report.
- Executive Summary (15 pts)
 1. A concise summary of the key points of your project: problem, methods, results, conclusions, benefits.
 2. Written for a top executive who doesn't have the time to read the whole report, but who is interested in what was done (methods, results, conclusions) and why it was done (problem, expected benefits)
 3. Present specific results and numbers
- Introduction (7 pts)
 1. Problem description: background information describing the problem
 2. Expected benefits of the project
- Objectives (3 pts)
State explicitly the specific objectives of the study (why did you do the study?)
- Methods (7 pts)
 1. A short sequential list of steps that you took to examine and solve the problem
 2. Any assumptions or limitation on methods (e.g. time limitations for running STORM, time slots not observed due to class conflicts for work sampling project, etc.)
- Results (30 pts)
 1. All key findings that were generated in meeting objectives
 2. Presented as summaries in tables or figures and mentioned in the text
 3. Raw data goes into appendix
 4. Discuss results with regard to trends in data, comparison of results between different methods, etc; but do not draw conclusions
- Discussion (15 pts)
 1. Give specific recommendations, improvements and specifications of design
 2. Suggestions for further study
 3. Make sure these conclusions relate to the problem and objectives
- Conclusions and Recommendations (10 pts)
Quantitative and subjective conclusions justified by your results

- Overall Quality (10 pts)
 1. Good professional appearance
 2. Nicely printed text
 3. Good graphical output for figures
 4. Spelling and typographical errors corrected
- Tables and Figures
 1. Go in results section
 2. Must have headings, above the table for tables, below for figures
 3. Must be mentioned and described in text, otherwise it should not be included
 4. Should be placed beneath or on the page immediately following the point at which they are first described

IE 327 – Case Study Evaluation Form
(Total = 100 pts)

Section	Comments	Score
Title Page (3 pts)		
Executive Summary (15 pts)		
Introduction (7 pts)		
Objectives (3 pts)		
Methods (7 pts)		
Results (30 pts)		
Discussion (15 pts)		
Conclusions and Recommendations (10 pts)		
Overall Quality (10 pts)		
Total		

Figure 1: Sample of Case Study Evaluation Form

Case Study Report Checklist

- Title Page
 - Do I have my title page with the name of the case study, team, members, section, and date?
- Executive Summary
 - Do I have the "ACTUAL NUMBERS" showing all the results of interest? For example, the original method measurements, the redesign measurements, the costs changes from the original to the improved method, and the cost to implement the new design, and etc.
 - Did I make it too long? Make it concise, but be sure to show the results, analyses, and recommendations. Executives in a firm do not have time to go through everything in the material.
 - Did I place the executive summary at the beginning of the report?
 - Did I make it too short?
- Introduction
 - Did I explain the background and current situation properly?
 - I should NOT show the results of the case study, just explain the expected benefits of the project.
- Objectives
 - Did I use bullets to properly list the objectives?
 - Did I miss some of the objectives?
- Methods
 - Did I show the steps on how I solved the problem? The actual software I used, which methods I used to come up with a redesign, and etc.
 - Did I list the assumptions or limitations on the methods?
 - I should NOT use bullets or simply just list the steps.
 - I should NOT show the results. Just explain what methods were used.
- Results
 - Do I have the "ACTUAL NUMBERS" showing all the results of interest? For example, the original method measurements, the redesign measurements, the costs changes from the original to the improved method, and the cost to implement the new design, etc.
 - Did I meet the objective?
 - Did I show the summaries of the results in tables or figures, if applicable?
 - Did I put the raw data into the appendix?
 - I should NOT discuss my results here, but just present them.

- Discussions
 - Do I have the "ACTUAL NUMBERS" of interest to be used for discussion? For example, the original method measurements, the redesign measurements, the costs changes from the original to the improved method, and the cost to implement the new design, etc.
 - Did I explain the redesign in details by giving the specifications? For example, dimensions of the new product, the measurements of the workstation, the methods of the new time schedule, and etc.
 - Did I make any suggestions for further study?
 - Did I make the conclusions relate to the problem and objectives?
- Conclusions and Recommendations
 - Do I have the "ACTUAL NUMBERS" of interest to make conclusions and recommendations? For example, the original method measurements, the redesign measurements, the costs changes from the original to the improved method, and the cost to implement the new design, etc.
 - Did I subjectively explain and justify why my conclusions and recommendations should be implemented?
- Overall Quality
 - Did I proofread?
 - Did I make everything consistent?
 - Did I type everything neatly? Did I make the text align, write in consistent font, give equal line spacing, and etc.
 - Did I label the figures? Did I label them individually?
 - Did I write in third person perspective?
- **Some categories might not be applicable to certain case studies**

Tips for a Successful Case Study Report

- Follow the IE 327 Lab Report Writing Guide. The reports are graded according to this guide. If items are not included or done incorrectly, points will be deducted.
- Answer all questions on the Case Study handout. Be sure to check the problem description for questions.
- Remember that you are working as a consulting firm. Write the report as if you were reporting data to the company's CEO. Be professional and try to write in third person (do not use "I" at all you are a group not an individual, and try not to use "We" that much).
- Make sure the firm's name and the section number is on the title page. Group members' names can also be included.
- Write the Executive Summary last. This will help ensure the information in the summary matches the report.
- SPELL CHECK. Both with the word processor AND by reading the report.
- GRAMMAR CHECK. There is an option in Word to have the program also check writing style. (Under "Tools", "Options", "Spelling and Grammar" tab, change "Writing Style" to "Grammar & Style". You can also click on the "Settings" box to change what Word examines)
- READ the report before turning it in, preferably by more than one group member. Make sure the different sections fit together and the information is consistent throughout the report. Also make sure the margins are set correctly (everything fits on the page; a table is not split on two pages; etc.).
- If you have any questions about any part of the report, ask.
- Turn the report in on time.

Case Study #1 (Mini)

- Gilbane Gold (Ethics and Societal Concern)

Introduction

The videotape, "Gilbane Gold", presents a hypothetical case involving a young engineer, David Jackson, who faces a problem posed by discharges from his plant, Z Corp, which is located in the town of Gilbane. Put yourself in the position of David and ask yourself what you would do in this situation, realizing that your job may be on the line. The cast of characters include:

- Diane Collins - Z Corp plant manager, reports to corporate headquarters
- Frank Seeders - engineer in charge of plant operations, reports to Diane
- Phil Port - manager of environmental operations, not an engineer
- David Jackson - young engineer responsible for environmental measurements, reports to Phil
- Dan Martin - Z Corp corporate lawyer
- Tom Richards - environmental engineer fired by Z Corp, quite knowledgeable about discharges
- Lloyd Bremen - former state environmental commissioner who oversaw original regulations, now farming using Gilbane Gold and is concerned
- Dr. Winslow Massin - Professor of Engineering Emeritus
- Maria Renato - TV reporter doing close up on Z Corp

Procedure

Answer the following questions (one or two sentences for each is sufficient) as they lead into your final decision.

1. Should the presentation of the case by TV reporter, Maria Renato, affect David's decision?
2. Should the fact that David's boss, Phil Port, is not an engineer affect David's decision?
3. Does Prof. Massin provide any useful insights into David's dilemma? Would you turn to a former professor for assistance?
4. Would you look to your professional society (The Institute of Industrial Engineers) for assistance?
5. Do you think the plant manager, Diane Collins, has received conflicting information from her employees? How could David better present his concerns?
6. Do you think Z Corp is "poisoning" the soil through its present levels of discharge? What if they increase it 500% as projected with the new contract?
7. Do you think David is deceiving the town of Gilbane if he does not reveal the results of a new test? Is there any situation in which failing to report such test results justified?
8. Do you think Diane's actions are unfair to David?
9. Do you think the town of Gilbane is treating Z Corp. unfairly? Should they bear some of the responsibility and expense of complying with its strict standards?
10. Do the actions of the ex-consultant Tom Richards seem completely above board?

Final Two Crucial Questions (with longer answers)

1. How would you advise David to proceed? Support your advice.

2. What would you do if you were in his shoes? What is your main ethical principle (duty, virtue, utilitarianism)? Why?

Case Study #2 (Mini)

- Job/Worksite and Flow Process Analysis

Guide

Introduction

Use the Job/Worksite Analysis Guide to identify potential problems and further analyses to be used on two different jobs (available on Angel): the hot end of glass molding for picture tube funnels and a flashlight assembly job. Write a one-paragraph summary indicating what appears (in this stage of your course learning) to be the worst problems of these jobs i.e. what would you focus your efforts on?

In the second job (flashlight assembly), there are variety of parts, components, and tools that enter the assembly area. Develop a Flow Process Chart for the current job (focus on the event types and description). Then devise an improved method and develop the resulting improved flow process chart. Briefly discuss your improvements.

Procedure

- For the "Hot end glass" video
 1. ONE Job/Worksite Analysis form
 2. ONE paragraph describing what concerns you about this job and any suggestions you may have
- For the "Flashlight Assembly" video
 1. ONE Job/Worksite Analysis form
 2. TWO Flow Process Charts
 - Actual Process
 - Proposed Process
 3. ONE paragraph summarizing your concerns and describing the recommendations that led you to your Proposed Process