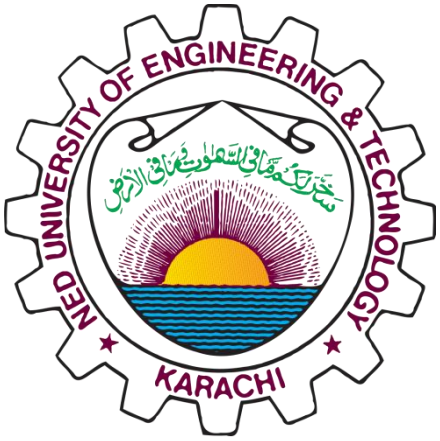
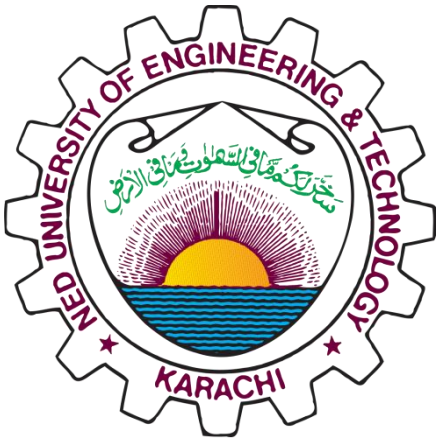
RULES AND REGULATIONS FOR FINAL YEAR PROJECTS



DEPARTMENT OF CHEMICAL ENGINEERING

NED UNIVERSITY OF ENGINEERING AND TECHNOLOGY

RULES AND REGULATIONS FOR FINAL YEAR PROJECTS



Prepared By:

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DEPARTMENT OF CHEMICAL ENGINEERING

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FINAL YEAR PROJECT REQUIREMENTS

1. Plagiarism is not allowed. Students are encouraged to keep the similarity index less than or equal to 12% in the report to secure full marks for the "Plagiarism" rubric. Reports containing more than 20% plagiarism will be rejected right away and the students will lose marks for the following rubrics:
    i. Plagiarism
    ii. Literature Review
    iii. Quality of Technical Work
    iv. Coherence & Organization (Report and Presentation)
    v. Formatting (Report and Presentation)
2. All equations, values, tables and charts in the text must be cited properly. Introduction and Literature review must include citations for major claims and key information.
3. Figures taken from the literature must be visible (not blurred). If the figure is blurred, it must be reproduced.
4. Tables taken from the literature must be reproduced. Copy-pasting of tables is not allowed.
5. All charts, tables and manuals used in designing must be included in Appendices with proper reference.
6. Equipment design & instrumentation must include process and instrumentation diagram (P&ID) of the process.
7. Project supervisor must conduct a meeting with its group members every week.
8. For every project meeting, a "Minutes of the Meeting" (MM) will be prepared by the students and signed with date by project supervisor on or before the next working day. The pro forma of MM is included in this document.
9. "Attendance Score" is the number of meetings attended by the student, and "Task Completion Score" is the number of times the student completed the assigned tasks. Both of these scores must tally with the record of MM.
10. The record of MM must be maintained in a file by the students and presented at every evaluation in front of the examination committee for marking.
11. The chairman, project coordinator and deputy project coordinator are authorized to check the record of MM at any time during the project. Incomplete record will lead to serious consequences.

12. Accuracy of the record of MM is solely the responsibility of students. The group which presents inaccurate MMs will NOT be allowed to present and the student will lose marks for the following rubrics:
    i. Contribution to Project
    ii. Delivery & Presentation Skills
    iii. Coherence & Organization (Report and Presentation)
    iv. Formatting (Report and Presentation)
13. Plagiarism report must be included in the record of MM.
14. Addition or subtraction of chapters tagged as "if applicable" must be approved by project supervisor.
15. Addition or subtraction of headings/sub-headings in chapters must also be approved by project supervisor.
16. The scope of study must also discuss the significance of the work.
17. For simulation based projects, material & energy balances and detailed equipment design must be calculated manually (using spreadsheets) and verified by simulation.
18. **Experimental projects which already have their equipment fabricated, or which require regular glassware for assembling must present and submit report in mid-term evaluation till Chapter 6: Experimental Work.** The extent of work included in Chapter 6 will be decided by supervisor.
19. There will be three evaluations of the final year projects:
    i. **Mid-Term Evaluation** (about 4 weeks before Fall Semester Exams)
    ii. **Pre-Final Evaluation** (about 4 weeks before Spring Semester Mid-Term Exams)
    iii. **Final Evaluation** (after Spring Semester Exams)
20. Pre-Final Evaluation will include all chapters except Process Costing & Economic Analysis, HAZOP and Safety Analysis and Conclusion & Future Recommendations.

FINAL YEAR PROJECT PRESENTATION REQUIREMENTS

1. There is no limit for the number of slides for presentation.
2. The presentation slides must be approved by the project supervisor. If possible, give a mock presentation to the project supervisor.
3. Avoid long paragraphs, use bullets instead.
4. Select colour schemes such that the presentation is visible and professional.
5. The header of every slide should contain the project title in the centre. The footer of every slide should display the slide number on the right.
6. Font size should not be less than 20. Font size of headings and text should be selected appropriately.
7. Maximum 1 figure/table should be presented per slide.
8. Pictures and tables should be very clear. Graphic content having resolution less than 300dpi is unclear when we use projector.
9. It is recommended to hyperlink the main claims and specific results shown in the presentation with the original spreadsheets, so that they may be accessed during the presentation and Q/A session.
10. The maximum time allotted for presentation is 20 minutes, after which a Q/A session will be held for 10-15 minutes. Time management is solely the presenters' responsibility.
11. Project Timeline (Gantt chart) and Conclusion are mandatory slides.
12. Follow the formal dress code.

FINAL YEAR PROJECT REPORT CONTENTS

(Underlined portion is the part to be checked on Mid-Term Evaluation)

3.1 THEORETICAL PROJECTS

- Acknowledgement
- Abstract
- Contents
- List of Figures
- List of Tables
- List of Abbreviations
- Chapter 1: Introduction
    - Background of Study
    - Problem Statement
    - Objectives
    - Scope of Study
- Chapter 2: Literature Survey
    - Raw Materials and Products
    - Past, Present and Future of Raw Material
    - Past, Present and Future of Product
    - Available Processes
- Chapter 3: Process Description
    - Process Selection
    - Detailed Description of Selected Process
    - Process Flow Diagram
- Chapter 4: Material & Energy Balances
- Chapter 5: Equipment Design & Instrumentation
- Chapter 6: Process Costing & Economic Analysis
- Chapter 7: HAZOP and Safety Analysis
- Chapter 8: Conclusion & Future Recommendations
- References
- Appendices

3.2 SIMULATION BASED PROJECTS

- Acknowledgement
- Abstract
- Contents
- List of Figures
- List of Tables
- List of Abbreviations
- Chapter 1: Introduction
    - Background of Study
    - Problem Statement
    - Objectives
    - Scope of Study
- Chapter 2: Literature Survey
    - Raw Materials and Products
    - Past, Present and Future of Raw Material
    - Past, Present and Future of Product
    - Available Processes
- Chapter 3: Process Description
    - Process Selection
    - Detailed Description of Selected Process
    - Process Flow Diagram
- Chapter 4: Process Model
    - Components
    - Property Package Selection
    - Unit Models Selection
    - Assumptions
- Chapter 5: Material & Energy Balances
    - Heat Integration
- Chapter 6: Detailed Equipment Design
- Chapter 7: Simulation & Convergence
    - Process Terminologies (if applicable)
    - Convergence Criteria
    - Model Validation

- Chapter 8: Process Costing & Economic Analysis
- Chapter 9: Results & Discussions
- Chapter 10: Conclusion & Future Recommendations
- References
- Appendices

3.3 EXPERIMENTAL RESEARCH PROJECTS

- Acknowledgement
- Abstract
- Contents
- List of Figures
- List of Tables
- List of Abbreviations
- Chapter 1: Introduction
    - Background of Study
    - Problem Statement
    - Objectives
    - Scope of Study
- Chapter 2: Literature Survey
    - Raw Materials and Products
    - Past, Present and Future of Raw Material
    - Past, Present and Future of Product
    - Available Processes
- Chapter 3: Process Description
    - Process Selection
    - Detailed Description of Selected Process
    - Process Flow Diagram
- Chapter 4: Equipment Design (if applicable)
- Chapter 5: HAZOP
- Chapter 6: Experimental Work
    - Observations
    - Problems and Troubleshooting
    - Characterization

- Chapter 7: Material and Energy Balances (if applicable)
- Chapter 8: Mathematical Model (if applicable)
- Chapter 9: Process Costing & Economic Analysis
- Chapter 10: Results and Discussion
- Chapter 11: Conclusion & Future Recommendations
- References
- Appendices

FINAL YEAR PROJECT REPORT FORMAT

The template for the report format has been attached at the end of these instructions.

1. There is no limit for the number of pages for project reports.
2. All pages should be set with the same margin. The inside margin should be 1.5" and 1" for the top, right and outside margins. Margins should be mirrored.
3. The page numbers should be printed at the bottom (centred).

4. All reports must contain Title page. Title page should contain title of report, Author's name, examination seat nos., supervisor and co-supervisor names, and batch number.
5. All reports must contain an Abstract. It must be limited to 250 words.
6. All reports must include Table of Contents, List of Figures and List of Tables at the starting of Report and References at the end of Report.
7. Citations and list of references must follow IEEE format available at https://ieeeauthorcenter.ieee.org/wp-content/uploads/IEEE-Reference-Guide.pdf

8. Headings should be numbered sequentially, i.e. 1, 1.1, 1.1.1…….
9. Main heading font size=14, Bold, All Caps.
10. Subheadings Font size=12, Bold, All Caps.
11. Sub-subheadings Font size=12, Bold. Each Word will be capitalized (except conjunctions and prepositions)
12. All headings under Sub-subheadings should be Font size=12, Italic, Underlined.
13. Font size for main text body=12, Times New Roman.
14. The title of a chapter should be typed using capital letters (font size=14), Bold, All Caps and centred. A new chapter must start on a new page. Chapters and their sub-sections must be given titles.
15. The number and the title of sub-section should be aligned with the left margin.
16. The first line of a paragraph should be indented by 0.25" from the left margin.
17. A new paragraph should not begin on the last line of a page.
18. Preliminary pages of a thesis, starting from the title page should be numbered using small letter Roman numeric (i, ii, iii, etc.); the texts should be numbered using Arabic numeric (1, 2, 3, etc.).

19. Figures and tables caption font size=12.
20. Figure captions are below the figure. Table captions are above the table.
21. Figures and Tables should be centre-aligned.
22. Equations must be numbered chapter wise e.g. equation 7 in chapter 2 would be refer as Equation (2.7) and numbered as (2.7). Numbering should be right intended, whereas the equation is left aligned.
23. Figures, Tables and Equations should be numbered chapter wise, e.g. for chapter 2- Figure 2.3, Chapter 3-Table 3.6 and For Chapter 4- Equation (4.1).

MINUTES OF THE MEETING SAMPLE

Meeting No. | | Date: | | Time: | |

Attendees:

Name	Seat No.	Attendance (√ or X)	Attendance Score*	All Tasks Completed** (√ or X)	Tasks Completion Score*	Signature of Supervisor with Date

* Score is the number of ticks obtained by the student before this meeting.

** Tasks which were assigned in the previous meeting (as recorded in the previous minutes of the meeting).

Minutes:

S. No.	**Discussion Point**	**Task Assigned**	**Whom the Task is assigned?** (Individual Seat no./Group)
1			
2			
3			
4			
5			
6			

_____

Signature of Supervisor with Date

FINAL YEAR PROJECT MID-TERM/PRE-FINAL EVALUATION RUBRICS

Rubrics	PLOs	1-2 marks	3-4 marks	5-6 marks	7-8 marks	9-10 marks
Contribution to Project (R1)	**PLO 9: Individual & Team Work**	Record of MM was not presented/incomplete/ inaccurate, or attendance /task completion score ≤65%.	Either the attendance score or the task completion score is 65-74%.	Either the attendance score or the task completion score is 75% - 89 %.	Either the attendance score or the task completion score is 90% - 99 %.	Both the attendance and task completion scores are 100%.
Plagiarism (R2)	**PLO 8: Ethics**	Plagiarism of the report is more than 19%.	Plagiarism of the report is 18-19%.	Plagiarism of the report is 16-17%.	Plagiarism of the report is 13-15%.	Plagiarism of the report is 1%-12%.
Literature Review (R3)	**PLO 4: Investigation**	Literature Review is not written or vague.	Literature Review is poor and is not clear to an unfamiliar reader.	Review provides a reasonable description of project, but lacks scientific writing standard and adequate no. of references.	Review provides a good background of the literature and sufficient number of references, but it lacks scientific writing standard.	Literature review is excellent, follows scientific writing standards and covers sufficient number of references.
Delivery & Presentation Skills (R4)	**PLO 10: Communication**	Presentation was not clear at all. Language was not appropriate.	Presenter occasionally spoke clearly or was reading from notes. Held little to no eye contact.	Presenter spoke clearly but lacked confidence. Language was generally clear.	Presenter spoke clearly. Language was generally clear and delivery was fluent. Consistent use of direct eye contact with audience.	Presenter spoke clearly and at a good pace to ensure audience comprehension. Language was used effectively and delivery was fluent and expressive.
Quality of Technical Work (R5)	**PLO 3: Design/ Development of Solution**	Technical work was incomplete. *Simulation was not presented. (for simulation based projects)*	Appropriate equations were not used. *Simulation did not converge. (for simulation based projects)*	Appropriate equations were used, but calculations had major errors. *Simulation had no errors, but incurred many engineering oversights. (for simulation based projects)*	Appropriate equations were used, but calculations had minor errors. *Simulation had no errors, but incurred minor engineering oversights. (for simulation based projects)*	Appropriate equations were used and calculations were properly done. *Simulation had no errors or engineering oversights. (for simulation based projects)*
Coherence & Organization (Report and Presentation) (R6)	**PLO 11: Project Management**	The argument, solution and examples were not clearly stated.	The argument, solution and examples were stated. Conclusion was unclear.	The argument and solution were clearly stated, but: 1) not all work had supportive illustrations; 2) the transitions and /or flow were somewhat difficult to follow.	The argument and solution were clearly stated .Writing is overall clear. Organization is good. Content is supported by good number of figures and tables.	The argument and solution were clearly stated with appropriate examples. Transitions and flow were easy to follow. Content was error-free and logically presented.
Formatting (Report and Presentation) (R7)	**PLO 5: Modern Tool Usage**	Report and slides did not have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) was not according to format.	Report and slides have page numbers. Referencing or Text formatting (font type & size, line spacing, margins) was not according to format.	Report and slides have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) had many mistakes.	Report and slides have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) had a few mistakes.	Report and slides have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) was according to format.
Lessons Learned from Project (R8)	**PLO 12: Lifelong Learning**	Student is clueless about the content of project work.	Student has very little knowledge about the content of project work.	Student has moderate knowledge about the content of project work and unable to answer many questions.	Student has knowledge about the content of project work but unable to answer few questions.	Student has complete knowledge about the content of project work and able to answer all questions.

FINAL YEAR PROJECT MID-TERM/PRE-FINAL EVALUATION RUBRICS

Rubrics	PLOs	1 mark	2 marks	3 marks	4 marks	5 marks
Contribution to Project (R1)	**PLO 9: Individual & Team Work**	Record of MM was not presented/incomplete/ inaccurate, or attendance /task completion score ≤65%.	Either the attendance score or the task completion score is less than 65-74%.	Either the attendance score or the task completion score is 75% - 89 %.	Either the attendance score or the task completion score is 90% - 99 %.	Both the attendance and task completion scores are 100%.
Plagiarism (R2)	**PLO 8: Ethics**	Similarity index of the report is more than 19%.	Similarity index of the report is 18-19%.	Similarity index of the report is 16-17%.	Similarity index of the report is 13-15%.	Similarity index of the report is 1%-12%.
Literature Review (R3)	**PLO 4: Investigation**	Literature Review is not written or vague.	Literature Review is poor and is not clear to an unfamiliar reader.	Review provides a reasonable description of project, but lacks scientific writing standard and adequate no. of references.	Review provides a good background of the literature and sufficient number of references, but it lacks scientific writing standard.	Literature review is excellent, follows scientific writing standards and covers sufficient number of references.
Delivery & Presentation Skills (R4)	**PLO 10: Communication**	Presentation was not clear at all. Language was not appropriate.	Presenter occasionally spoke clearly or was reading from notes. Held little to no eye contact.	Presenter spoke clearly but lacked confidence. Language was generally clear.	Presenter spoke clearly. Language was generally clear and delivery was fluent. Consistent use of direct eye contact with audience.	Presenter spoke clearly and at a good pace to ensure audience comprehension. Language was used effectively and delivery was fluent and expressive.
Quality of Technical Work (R5)	**PLO 3: Design/ Development of Solution**	Technical work was incomplete. *Simulation was not presented. (for simulation based projects)*	Appropriate equations were not used. *Simulation did not converge. (for simulation based projects)*	Appropriate equations were used, but calculations had major errors. *Simulation had no errors, but incurred many engineering oversights. (for simulation based projects)*	Appropriate equations were used, but calculations had minor errors. *Simulation had no errors, but incurred minor engineering oversights. (for simulation based projects)*	Appropriate equations were used and calculations were properly done. *Simulation had no errors or engineering oversights. (for simulation based projects)*
Coherence & Organization (Report and Presentation) (R6)	**PLO 11: Project Management**	The argument, solution and examples were not clearly stated.	The argument, solution and examples were stated. Conclusion was unclear.	The argument and solution were clearly stated, but: 1) not all work had supportive illustrations; 2) the transitions and /or flow were somewhat difficult to follow.	The argument and solution were clearly stated .Writing is overall clear. Organization is good. Content is supported by good number of figures and tables.	The argument and solution were clearly stated with appropriate examples. Transitions and flow were easy to follow. Content was error-free and logically presented.
Formatting (Report and Presentation) (R7)	**PLO 5: Modern Tool Usage**	Report and slides did not have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) was not according to format.	Report and slides have page numbers. Referencing or Text formatting (font type & size, line spacing, margins) was not according to format.	Report and slides have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) had many mistakes.	Report and slides have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) had a few mistakes.	Report and slides have page numbers. Referencing and Text formatting (font type & size, line spacing, margins) was according to format.
Lessons Learned from Project (R8)	**PLO 12: Lifelong Learning**	Student is clueless about the content of project work.	Student has very little knowledge about the content of project work.	Student has moderate knowledge about the content of project work and unable to answer many questions.	Student has knowledge about the content of project work but unable to answer few questions.	Student has complete knowledge about the content of project work and able to answer all questions.

FINAL YEAR PROJECT REPORT FORMAT SAMPLE

8.1 SPINE

1. Font size for thesis title and batch no. =12, Times New Roman, Bold.
2. Sample is given below:

Design and Fabrication of a Co-Pyrolysis Plant to Convert Waste Plastic and Waste Engine Oil for the Production of Fuel	**Batch 2015-16**

8.2 REPORT

(Next page onwards)