

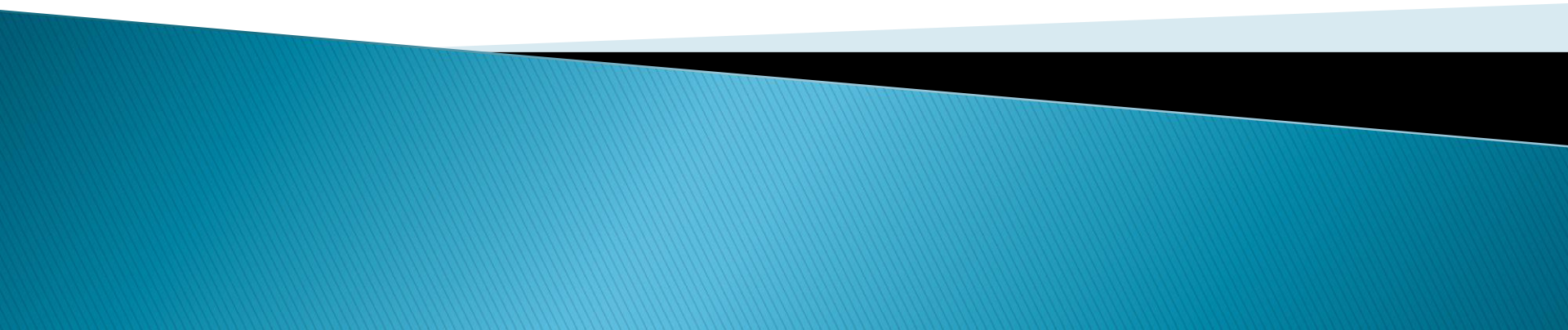
# BSc Graduation Project

PART I: Introduction

Dr.M.Helmy Sayyounh

**The graduation project is the last step in preparing the student for professional practice after graduation**

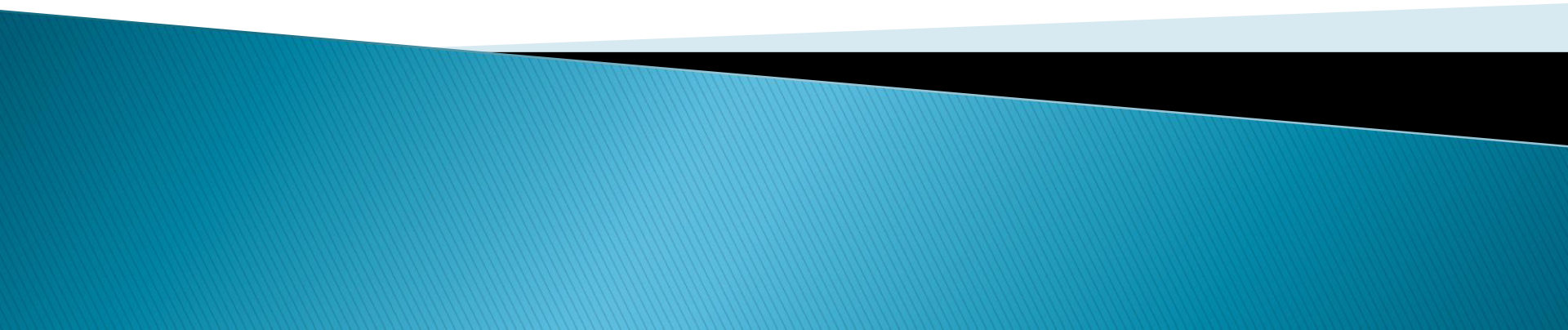
**GP is considered an opportunity to apply and demonstrate the students' accumulation of knowledge, skills and experiences throughout their undergraduate education**



All the students' education including lectures, tutorials, discussion groups, labs, seminars, field trips, and industrial training should be reflected in the graduation projects.

It requires continuous work and commitment to achieve the required goals.

**The project represents an actual need of the industry or the community.**



# Graduation Project

All students undertake a major project as part of the program. The aim of the project is to provide the students – in groups – with an opportunity to implement the appropriate concepts and techniques to a particular design.

ILOs of the Graduation Project are To:

1. Integrate scientific concepts, engineering techniques and business aspects to effectively solve a problem
2. Develop innovative solutions to problems encountered during the implementation process taking into consideration technical, economical, social and environmental requirements
3. Enhance various skills including technical report writing, presentation skills, communication and team working

- ▶ **4. Enhance the ability to work under stress and constraints of quality, time and cost**
- ▶ **5. Assess and evaluate effectively the characteristics and performance of components, processes and systems**
- ▶ **6. Identify risks associated with the project**
- ▶ **7. Investigate the failure of components, processes and systems**



## The basis of evaluation is as follows:

30% for the timely submission of the deliverables as prescribed by the project advisor.

40% for the report .

30% for the oral presentation (20% for communication skills, 50 % for the project evaluation and 30 % for the scientific discussion of each student).

## ▶ Graduation Project Requirements

- ▶ **1 – The Essential Question (EQ): This is the foundation of the project.**
- ▶ **The EQ must reflect genuine inquiry and must be complex, interesting, and lend itself to a concrete product/improvement in an existing product or facility.**

- ▶ **2–The Report:**
- ▶ **The report should detail its objectives and benefits to the industry/community, should review the basics and details of the engineering approach used to tackle the problem, should present and analyze the major results and presents direct conclusions.**
- ▶ **The report should reflect the student ability to write a technical report.**
- ▶ **References/bibliography should follow a standard citation format.**

- ▶ **3– The Oral Presentation:**
- ▶ **Each group of students are expected to summarize the Essential Question, major findings into a power–point presentation.**
- ▶ **The presentation should follow all the guidelines as detailed in the Communication and Presentation Skills lectures.**
- ▶ **The presentation time for each group of students is usually limited to 20 minutes plus five minutes for questions.**

- ▶ **Duties of the Student**
- ▶ **Being creative, responsible and prompt.**
- ▶ **Researching existing scientific and market information through online resources, department libraries, CUFE library, CU central library, new papers, etc....**
- ▶ **Attending all meetings with the project advisory staff.**
- ▶ **Being prepared in all meetings to demonstrate and explain progress and/or inquire about technical issues.**

- ▶ **Recording all meeting days and topics discussed/assignments given in the meetings.**
- ▶ **Proper working in teams with synergy and with minimum advisor interference to resolve inter-team problems.**
- ▶ **The student is the party responsible for the completion of the project on time.**

- ▶ A good essential question is:
- ▶ Clearly limited in scope; it sets boundaries on the breadth and depth of your research. If your topic is too broad, it will lack depth.
- ▶ Deep; it asks what requires an involved, in-depth response, not a simple answer. If the answer is obvious, throw away the question and try again.
- ▶ A clear, direct, and precise sentence. The essential question (interrogative) will become the declarative thesis of your report.



# Graduation Project

**PART II: Project writing**

Dr.M.Helmy Sayyounh



# Organizing Your Writing

- 1. Define Your Objectives Before Writing.**
- 2. Organize Your Thoughts To Point Readers To a Logic Conclusion.**

**3. Outline The Topics You Want To Cover .**

**4. Prepare a First Draft To Improve Readability  
and To Remove Unnecessary Words and  
Phrases.**

**5. Choose Your Words Carefully.**

**6. Ask For Specific Suggestions on How To Improve Readability.**

**7. Use Only One System of Units Rather Than a Combination.**

# OUTLINE

**Proper Organization Should Lead The Reader Through Your Supporting Data and Theories To a Logic Conclusion**

# TITLE

**Should Be Concise, Attract  
Attention, and Highlight the Main Point of  
Your Report**

## Final Report Requirements

- ▶ **Language of the report: English**
- ▶ **General appearance: Formal and professional.**  
**Apply rules of Technical Report Writing Contents of GP Report**

**Cover page: Student name, Program title, Dates, Names of supervisors and their affiliations and institutions.**

- ▶ **Acknowledgement: Acknowledge the advisor and the examiners all those who helped you during the GP.**
- ▶ **Summary: Summarize the complete report, and highlight the conclusions**
- ▶ **Table of Contents: Lists of Tables and Figures (if necessary)**
- ▶ **Introduction & Background**
  - The Essential Question (two or three lines)
  - Relevance
  - Engineering Approach
  - Road map to the sections of the report

## ▶ Body of the report :

- ▶ Information about the EQ
- ▶ Review
- ▶ Scientific and engineering details
- ▶ Assumptions and analysis
- ▶ Case histories
- ▶ Software applications
- ▶ Technical excerpts
- ▶ How the GP complemented the academic study



# STATEMENT OF THEORY AND DEFINITION

- ▶ **Explain Theory**
- ▶ **Define Terms**
- ▶ **Describe Test Procedure Used**
- ▶ **Outline Any Problems Peculiar to the Subject**

# DESCRIPTION AND APPLICATION OF EQUIPMENT AND PROCESSES

- ▶ **Tell How The Equipment Was Used and How Tests were Conducted.**
- ▶ **Describe Any Unusual Test Procedure's.**

- ▶ **Discuss The Development of Experimental Equipment with Illustrations.**
- ▶ **Evaluate Equipment and Its Applications.**

# PRESENTATION OF DATA AND RESULTS

- ▶ **Present Results in The Clearest Form**
- ▶ **Be Sure To Define All Terms in The Text and in Figures and Tables**
- ▶ **Interpret Clearly the Data You Are Presenting**

- ▶ **Conclusions**
- ▶ **Recommendations and/or suggestions:**  
Things to facilitate further studies related to this topic
- ▶ **References:** Books, notes, magazines, personal communications, websites, technical articles, manuals, technical pamphlets, etc...
- ▶ **Appendixes:** Include details, samples of documents, examples, etc...

# Conclusions

- ▶ **State Directly and Briefly your Conclusions and the Utility of These Conclusions.**
- ▶ **All Conclusions Should be Supported by Data Presented in the Report.**

# **ACKNOWLEDGEMENT**

**Briefly Cite or Acknowledge Special Help  
From Individuals or Organization**

# **NOMENCLATURE**

**Define Symbols You Are Using in  
the Report**



# REFERENCES

- ▶ **Should Be Numbered in the Order They are Cited in The Text.**
  
- ▶ **Information Should be As Complete As Possible and in The Following Order:**
  - **Reference Number**
  - **Authors Last Name and Initial**
  - **Title of the Article**
  - **Publication in Which the Article Appears**
  - **Name of Publisher and City Where The Publisher is Located**
  - **Date of Publication, Volume**

# APPENDIX

**Use Appendices for Mathematical Derivations and Supporting Material Too Detailed To Include in the Body of The Report**

# TABLES

- ▶ **Should be Used Only if They Present Information more Effectively Than Running Text.**
- ▶ **All Tables Should Be Cited in the Body of The Report.**
- ▶ **Number Tables Sequentially as They Appear In The Text.**

# FIGURES

- ▶ **Make Your Figure As Simple As Possible.**
- ▶ **Use Horizontal Orientation.**
- ▶ **Number Figures Sequentially As They Appear in The Text.**
- ▶ **Ensure That All Lines in The Figure are of The Same Intensity.**

# Graduation Project

## PART III: Project Presentation

Dr.M.Helmy Sayyounh



# Checklist Prior To Presentation

- ▶ **Check your notes in proper order. Put them into your hand back.**
- ▶ **Take your slides with you.**

- ▶ **Recheck all audio–visual material to ensure it is in order.**
- ▶ **Check to see that there have been no last minutes changes.**

- ▶ **Arrive early.**
- ▶ **Check the set-up of the room.  
Rearrange if necessary.**
- ▶ **Test the microphone if you'll be using one.**
- ▶ **Set-up audio- visual material.**



- ▶ **Check to make sure equipment is working.**
- ▶ **Focus overhead projector, etc.**
- ▶ **If you need glass of water , check to see that it is there.**

## Asking for Questions During a Presentation

**Every time you open for questions you lose the ball to the other court. There is also a loss of continuity.**

**Careful organization and use of appropriate visuals will eliminate the need for questions.**

# Kinds of Questions

- ▶ **Neutral questions** : Request information or clarification.
- ▶ **Friendly questions** : Betray a bias towards what you have said.
- ▶ **Hostile questions**: Prefaced with argument with what you have said.

# Answering Questions

- **Never assume a superior air.**
- **Answer neutral and friendly questions by giving information.**
- **Satisfy hostile questioners that you are understand why they feel the way they do.**

- **Listen carefully to the question.**
- **Repeat the question so you are sure you understand it and so every one of the audience hears it.**
- **Define terms, either from the questions or terms you'll be using.**

- **If necessary, divide the question into several parts, and with each part separately.**
- **Always tell the truth.**

- **Be brief and to the point.**
- **Limit your answer to the question.**
- **Do not introduce something new.**

- **If a questioner interrupts, pause and let him finish, then continue your answer. Don't try to talk louder. Don't let him get you off the point of your answer. Don't get into argument.**



- **Try to complete your answer and move on to the next question.**
- **Deal with questions one at a time.**

- **If a question contains untrue information, correct the fact, then deal with the question.**
- **Relate your answers to your presentation, e.g. ‘As I said...’**
- **If a question is strongly argumentative, answer it directly, maintaining your point of view.**

- **Don't let a questioner give a speech. Cut in and ask what the question is?**
- **If someone has difficulty wording a question, assist.**

- **Don't** let others put words in your mouth or try to read your thoughts.
- **Don't** be afraid to say , ' I don't know.' And don't make rash promises.

## WHAT IS YOUR BODY SAYING ABOUT YOU?

- ▶ **If your voice presents the message, your body presents the subtext.**
- ▶ **Some will argue that body language is 95 per cent of the message.**

# Solo Performances

- ▶ **A vital voice comes from a vital body.**
- ▶ **If you have a flaccid, tired, apologetic body, you negate your message.**

- ▶ **Don't cross your legs at the ankles and rock back and forth.**
- ▶ **Don't cross your arms across the chest or putting your hands on your hips, and pacing up and down in front of the audience.**

- ▶ **Jingling coins and keys in your pocket telegraphs to the audience that you're nervous.**
- ▶ **Don't shove your hands deep into your pockets.**



- ▶ **You present a positive assured image when you stand before an audience with your weight well balanced on both feet.**

- ▶ **You present a confident seated image if you keep the spine straight, the shoulders relaxed, and the chest open.**
- ▶ **As much as possible keep your arms and hands free for gestures.**

## Presentation Requirements

- ▶ **Length: about 20 minutes for each group plus 5 minutes for questions**
- ▶ **Language: English**
- ▶ **Content: a summary of the report, with focus on your achievements and learning outcomes**

# Parts of the presentation

- ▶ **Outline**: State the main points in your presentation
- ▶ **Body**: State the EQ, its relevance, your analysis and conclusions. Include suggestions to help future students.
- ▶ **At the end**, thank the panel for their time.

# Introduction

- ▶ **Organization is the key to clarity; the key to organization is clear, and logical thinking.**
- ▶ **The key to dynamic speaking is the transference of that logical thinking into a message with impact.**
- ▶ **You are asked to write less, speak more, question often, and develop dynamic speaking technique.**

# Organizing Your Presentation

## ▶ Speeches Versus Presentations

A general audience listening to a speaker expects to be entrained, informed, and enjoys the unexpected.

## Attitude

**Be honest with yourself about your attitude to the presentation**

## Purpose

**Why you are making this speech or presentation?**

## Audience Analysis

To whom you are speaking?

## Scatter gram

Write down everything you could talk about on the subject



# Core Statement

**Write out a core statement for your presentation.**

**The core statement will identify the Audience, the purpose, and the expected outcome.**

## Hidden Agendas and Personal Interests

**Write down the questions your audience might ask.**

**You'll want to answer as many of these questions as possible in your presentation.**

## Determine Main Points

**Determine the main points of your presentation and ask yourself : ` What does my audience need to know so I can achieve my purpose?**

## Card Main Points

**Put your main points on cards.  
Do not number them.**

# Support

**Determine the support material for each main point.**

**These material must be accurate, honest and factual.**

## Sequence Main Points

**Under your support material restate your main point.**

# Organizing your cards into a sequence based on

Time : Historical event

Space : Geographic, physical, governmental or sectional subjects.

Topical : Suited to presentation of qualities, aspects, classes, types.

Problem Solution : Presenting changes, offering new idea

# Transition

**Decide on the transitions you wish to use to get you from one main point to another.**

# Vocalize

**Get feedback from someone acting as audience coach:**

- a. Have I met the objectives of my core statement through my main points?**
- b. Are my main points clearly supported?**



**c. Does my discussion answer questions I am anticipating?**

**d. Are my main points organized in a sequence that leads to a dynamic conclusion?**

## Visual Aids

**Visual aids should never be determined before organization.**

# Beginning and Ending

**How do I begin and how do I end?**

**The beginning must gain the attention of your audience and introduce them to the content.**

## ▶ **Imagine your audience asking**

- **Why should I listen to this?**
- **What's the subject got to do with me?**
- **What am I going to hear?.**
- **Your opening should provide all the answers.**

## Beginning a Speech

**A rhetorical question, story, special interests,...**

## Beginning a Presentation

**Dynamic statements of purpose and main points.**

# Concluding a Speech

- ▶ **Conclusions must indicate to the audience: “ This is the end.”**
- ▶ **To conclude speeches of a general nature you can :**

**a– Summarize, repeat, review, or restate the theme and main points in somewhat different language from that used in the body of the speech.**

**b– Appeal for action or belief.**

# Checklist

- **Have I examined my ideas thoroughly?**
- **Have I been objectively self-critical?**
- **Is my organization easy to follow?**
- **Are my main points clearly made?**

- **Have I attempted to cover too many points?**
- **Have I over-emphasized minor points?**
- **Are my supporting facts and evidence correct?**
- **Do my visual aids clarify and intensify my main points?**



- **Have I dealt with possible audience questions and concerns?**
- **Have I fulfilled my core statement?**

# Concluding a Presentation

**Summary is needed before conclusions**

# Graduation Project

**PART VI: Final remarks and important notes**

Dr.M.Helmy Sayyounh

- ▶ **Some Considerations:**
- ▶ **Review your contents carefully and thoroughly before going live in the presentation.**
- ▶ **You may have a copy of your report with you on the presentation day for reference to specific sections.**
- ▶ **Remember that the presentation is not a copy of your report; you need to add your input and draw the jury's attention to the important points in your report.**

- ▶ **A presentation needs adequate use of visuals to appeal to the jury; integrate photos, videos, charts ...,etc. where possible.**
- ▶ **Maintain balanced eye contact with all the panel members; do not show favoritism to any of them as this may not be good for you later.**
- ▶ **Talk to your panel, not to your slides.**
- ▶ **Remember, you are giving this presentation to the panel members.**



## Final Remarks

- ▶ **The report and the presentation reflect the essence of your work. They should not be simple replicas or collections of cut-and-paste incoherent material.**
- ▶ **Be ready to defend your arguments, not those who have helped you.**
- ▶ **The contents of the graduation project report and presentation should not be only a mere collection of incoherent Xerox copies of catalogs or articles or materials from the internet. Try to show understanding of the essence and principles of operations.**

- ▶ **Pay attention to the style, and physical appearance of the report and the presentation and show originalities of your work.**
- ▶ **For pagination of the report pages, use Roman numbers (upper and lower cases) for parts before the introduction and Arabic numbers for the introduction till the end of the report.**
- ▶ **The report should be written using Microsoft Word. Submit one hardcopy and one e-copy of the final version to your mentor (s)**

- ▶ **Consider the graduation project as an investment you do while you are at the university to capitalize on your chances of getting work.**
- ▶ **Do not limit your exposure to include only the technical “stuff”; be aware of the importance of managerial, human resource, safety and environment and all other issues that form the work environment.**



## ▶ Important Notes

- ▶ The design of the GP report binding should follow the sample provided below for the front and back covers.
- ▶ Each graduation project group is required to prepare a one-page project info sheet to be included in the program graduation project directory. Sample of the GP summary sheet is provided.
- ▶ All credit hour students are required to present their graduation projects in a one day poster conference. A sample of GP poster format is provided. Guidance on how to prepare GP Poster are usually provided on credit hour web site.