

Report Writing Skills

Abdulaziz M. El-Tamimi



Industrial Engineering Department
College of engineering
King Saud university



Topics

- Introduction to scientific investigation
- Project Report: defined and guideline
- **Stages in report writing**
 - **Guideline for report typing**
- Things to avoid`



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➤ Scientific Investigation Steps:

- 1) *Describing the problem*
- 2) *Collecting data*
- 3) *Analyzing the data*
- 4) *Interpreting the result*
- 5) *Discussing suggested decision to be taken*
- 6) *Developing plan to carry out suggested decisions*
- 7) *Concluding how plan is to achieve the objectives*



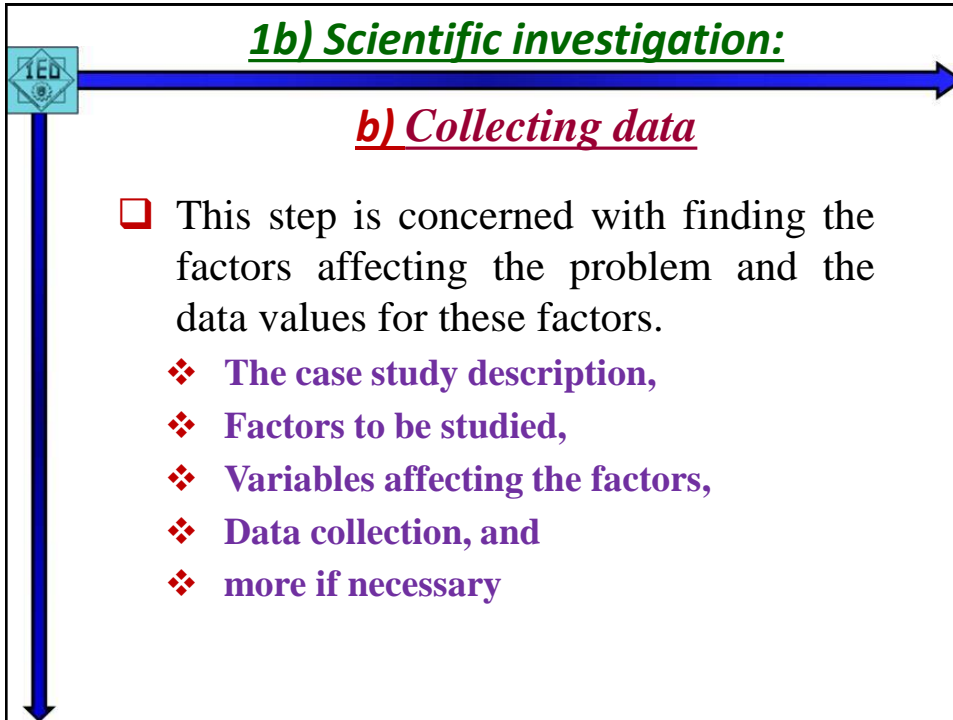
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1a) Scientific investigation:

a) Describing the problem

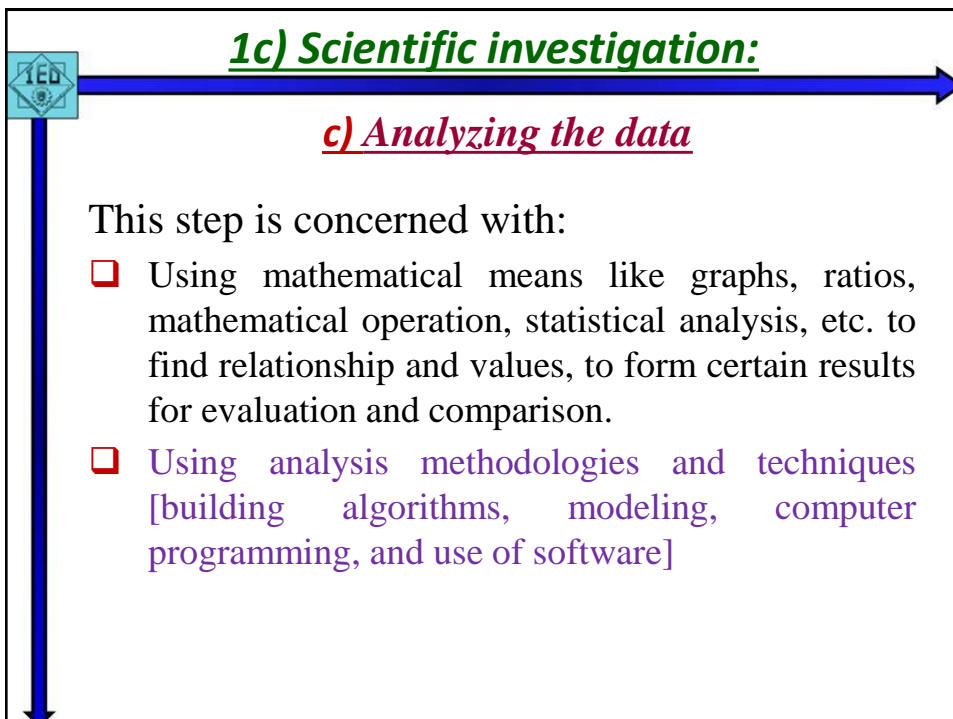
- ❑ This step is concerned with posing the requirements for the case to be studied.
 - ❖ Background,
 - ❖ Problem identification,
 - ❖ Goal and Objectives,
 - ❖ Realistic constraint to be met, (give brief explanations about these constraint) and
 - ❖ Work plan (give details how activities to be carried out)
 - ❖ more if necessary



1b) Scientific investigation:

b) Collecting data

- ❑ This step is concerned with finding the factors affecting the problem and the data values for these factors.
 - ❖ The case study description,
 - ❖ Factors to be studied,
 - ❖ Variables affecting the factors,
 - ❖ Data collection, and
 - ❖ more if necessary

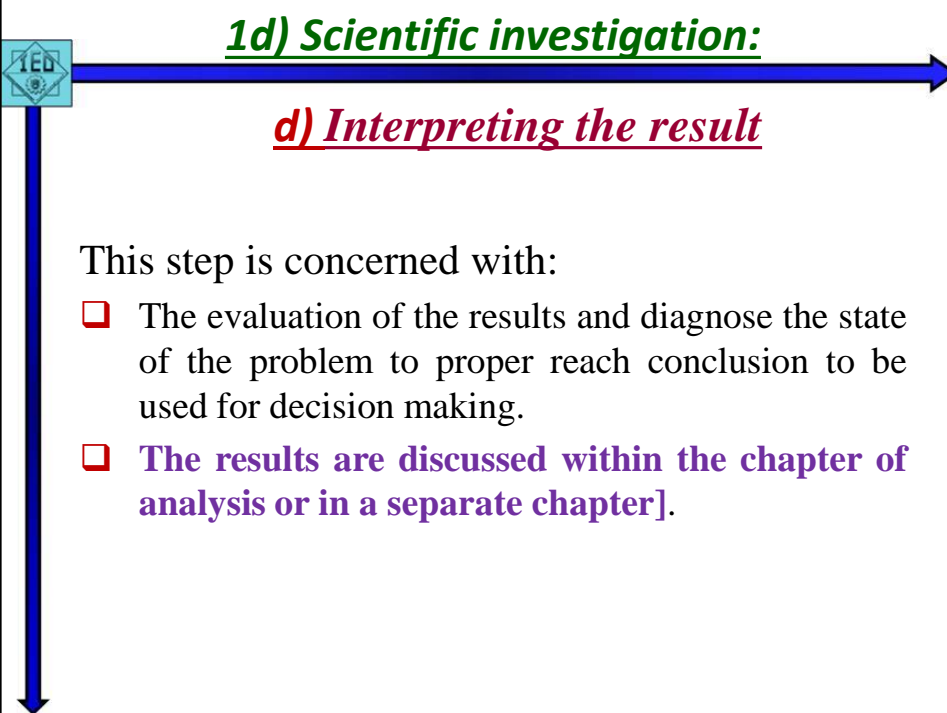


1c) Scientific investigation:

c) Analyzing the data

This step is concerned with:

- ❑ Using mathematical means like graphs, ratios, mathematical operation, statistical analysis, etc. to find relationship and values, to form certain results for evaluation and comparison.
- ❑ Using analysis methodologies and techniques [building algorithms, modeling, computer programming, and use of software]

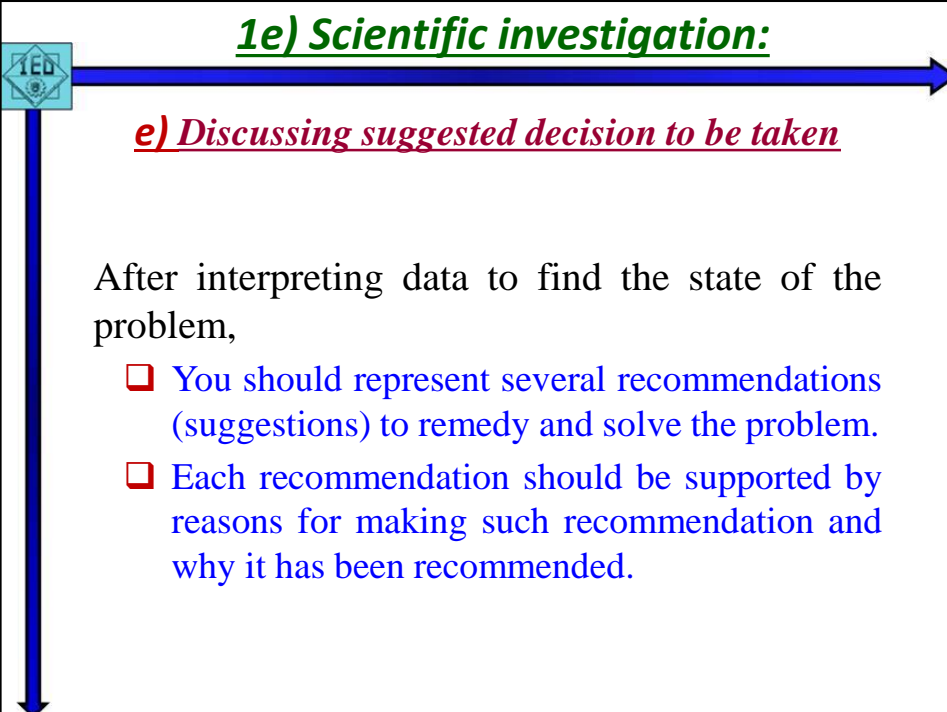


1d) Scientific investigation:

d) Interpreting the result

This step is concerned with:

- The evaluation of the results and diagnose the state of the problem to proper reach conclusion to be used for decision making.
- The results are discussed within the chapter of analysis or in a separate chapter].**



1e) Scientific investigation:

e) Discussing suggested decision to be taken

After interpreting data to find the state of the problem,

- You should represent several recommendations (suggestions) to remedy and solve the problem.
- Each recommendation should be supported by reasons for making such recommendation and why it has been recommended.

1f) Scientific investigation:

f) Developing plan to carry out suggested decisions

After developing recommended suggestions,

A plan is to be done and carried out for these suggestions.

Two types of plan to be set:

- Short term plan: this includes suggestions to be carried immediately with first six month to year.
- Long term plan: this includes suggestions to be carried out with next years (3-5years)

For both plans, brief discussion for each suggested recommendation to be implemented of the following points:

- how they will be implemented,
- justifying the implementation action to gain benefits from implementation, and
- Constraints or obstacle may face the implementation

Scientific investigation:

g) Concluding how plan is to achieve the objectives

In this step, the objectives required to be reached is examined according the suggested recommendations.

This to examine how these recommendations can achieve the objectives and solve the problem.

*Project Report:
defined, requirements and guideline*




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Project Report : defined


The capstone design project report is a scientific / technical written report conveying information and knowledge (which has been obtained from several sources) and work carried out and its outcomes for solving engineering design problem.



Project Report : Basic requirements

When writing a report you are concerned with the following:


- *Finding Information sources and Documentations: they provide existing knowledge from different sources (books, articles, technical brochures, interviews, experts, data, etc.).*
- *Conveying knowledge gained in form of graphics, tables and writing understandable contents within a enough length to realistic audience and situation.*
- *Forming a report based on set of standard formatting for report outline format and Writing format.*
- *Producing Report print*



Project Report : guideline

When writing the report, one should:

- 1) Focus on planning the report by defining:
 - 1) What is the report topic?
 - 2) What is the report purpose and what should accomplish?
 - 3) What is the type and style of writing (technical, research, laboratory or others)?
 - 4) How the report contents can be outlined?
 - 5) What is the information and details of the contents?
 - 6) How the contents can to be presented (graphics, tables, charts, etc.)?
 - 7) How the final report should look like?
 - 8) Who are the audience needing the report?




Project Report : guideline

When writing the report, one should:

2) Focus on writing:

- 1) How well the writing is adapted to work in hand?
- 2) How the writing is clear and readable?
- 3) How well the writing is met to audience who read it?
- 4) How the writing is organized?
- 5) How long it can be?
- 6) How much details the writing should be?




Project Report : guideline

When writing the report, one should:

3) Focus on writing format:


- 1) How well heading, subheading, listing, and notices are used?
- 2) How well tables and graph are merged?
- 3) How well writing format (margin, fonts, captions, etc.) is handled?
- 4) How well the report final copy is turned out?



Project Report : guideline

When writing the report, one should:

- 4) Focus on way of your writing:
 - 1) What is to be said and how?
 - 2) What is required to conform work done?
 - 3) How the content to be written (starting and continuing writing contents)?
 - 4) What the length of the report (how many words)?
 - 5) Who will read report draft for critical review?



Project Report : guideline

When writing the report, one should:

- 5) Focus on technical writing characteristics:
 - 1) Provide proper technical information
 - 2) Use visuals (such as drawings, charts, graphs, tables, photographs, and equations to present information
 - 3) Use numerical data to precisely describe quantity and directions
 - 4) Provide an accurate and well documented information
 - 5) Provide grammatically and stylistically correct writing

Stages in report writing



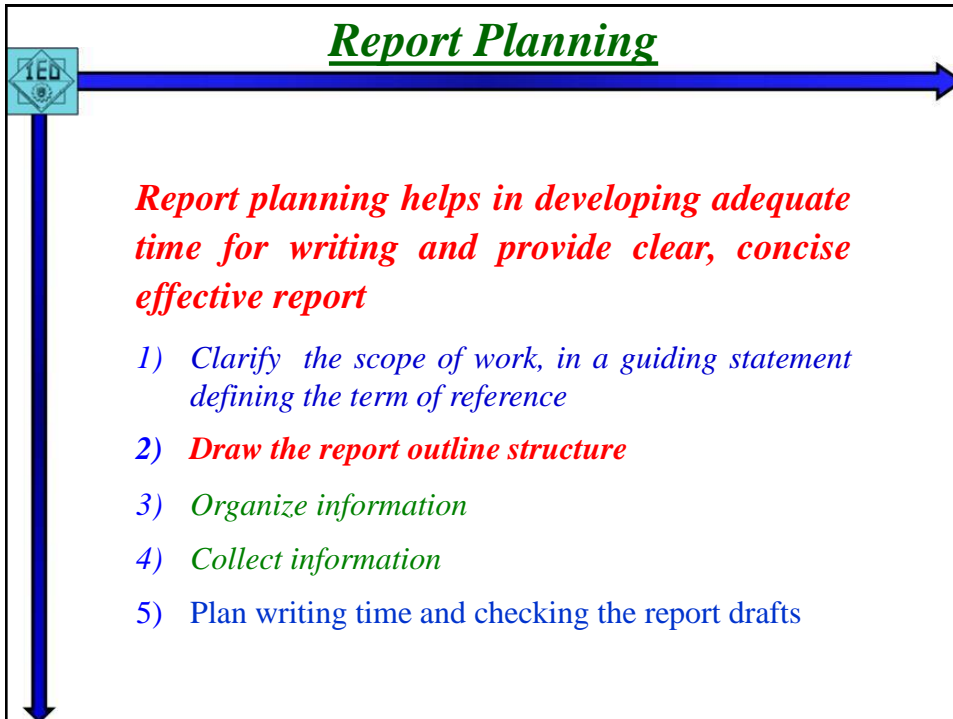
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Stages in report writing



- ***Report planning***
- Collecting information
- Organizing information
- Writing and checking the report drafts

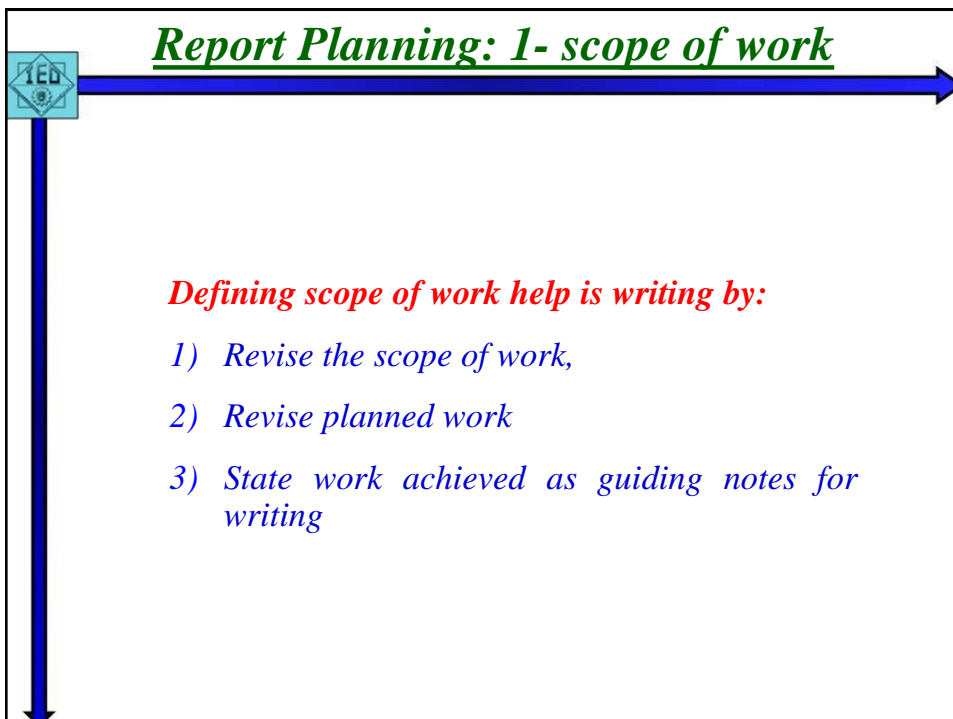


Report Planning

Report planning helps in developing adequate time for writing and provide clear, concise effective report

- 1) Clarify the scope of work, in a guiding statement defining the term of reference
- 2) **Draw the report outline structure**
- 3) *Organize information*
- 4) *Collect information*
- 5) Plan writing time and checking the report drafts

The slide features a blue header with the title 'Report Planning' in green, underlined, and bold. A blue arrow points right from the title. A blue vertical arrow points down from the top-left corner. A small logo with 'IED' and a globe is in the top-left corner. The main text is in red italics, and the list items are in blue.



Report Planning: 1- scope of work

Defining scope of work help is writing by:

- 1) *Revise the scope of work,*
- 2) *Revise planned work*
- 3) *State work achieved as guiding notes for writing*

The slide features a blue header with the title 'Report Planning: 1- scope of work' in green, underlined, and bold. A blue arrow points right from the title. A blue vertical arrow points down from the top-left corner. A small logo with 'IED' and a globe is in the top-left corner. The main text is in red italics, and the list items are in blue.

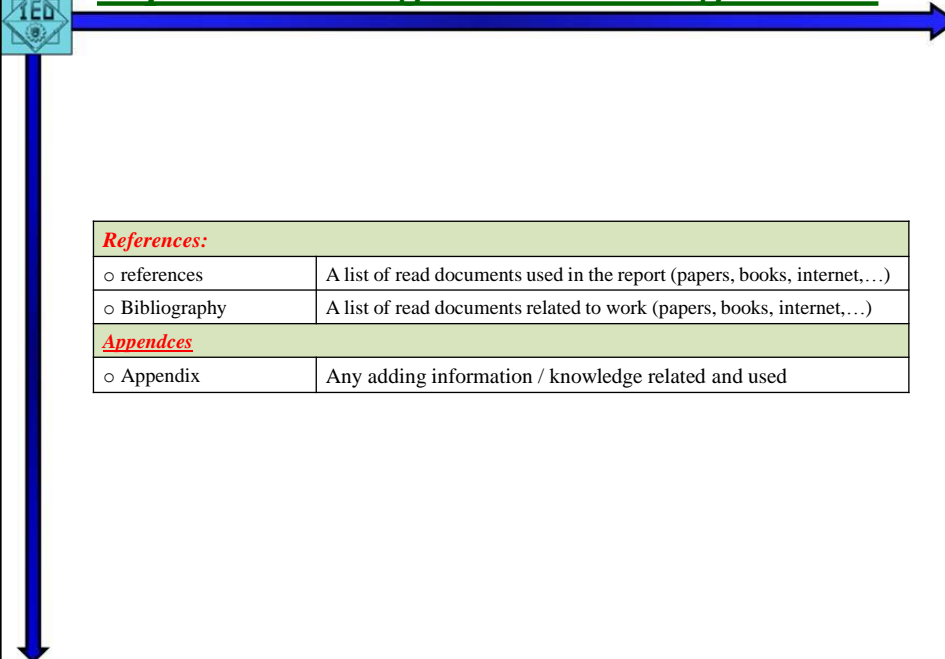
Report Planning: 2- structuring outline

<u>Title page (one page)</u>	
○ Report title	A concise and short statement of problem investigated
○ Names	Name of students and supervisor(s)
○ Submission	Degree, semester, date
<u>Acknowledgement (one page)</u>	
○ Statement	A statement of appreciation to persons, organization, and family supporting the work
<u>Tabulation</u>	
○ Table of contents	A list shows report labeled and paged sections heading and sub-heading
○ List of abbreviation	A list shows abbreviated words used in the report repeatedly
○ List of figures,	A list shows figures number, titles and page number
○ List of tables	A list shows tables number, titles and page number
<u>Summary/Abstract</u>	
○ Summary (1 page)	Technical report (statement for purpose, scope, major issues, results and conclusion)
○ Abstract (1 paragraph)	Scientific report (statement for problem, main results and conclusion)

Report Planning: 2- structuring outline

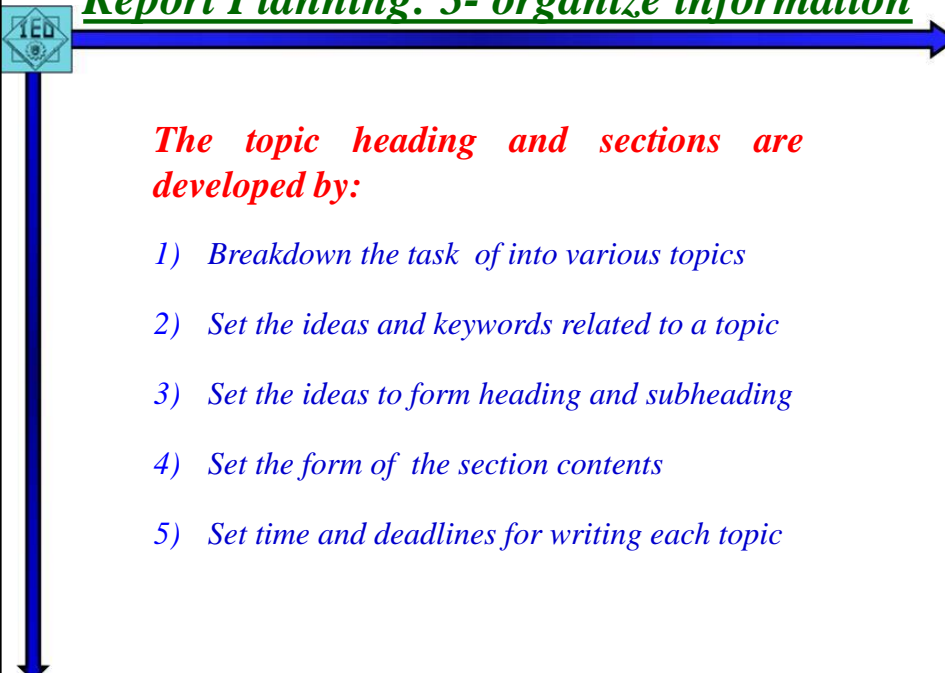
<u>Introduction</u>	
○ Purpose	Explain the reasons and the importance of the problem
○ Problem definition	Describe the engineering problem that needs to be done
○ Scope of work	Describe project goal and objectives, realistic constraint(s) to be met, proposed solutions and listing criteria in the order they will be done
○ Project planning	Describe the activities to be done, how to be done and scheduling duration.
<u>Background</u>	
○ Theoretical review	Review the theoretical bases relevant to requirements
○ Literature review	Review the background and prior literature relevant to requirements
<u>Methodology</u>	
○ Analytical approaches	Describe analytical techniques and method needed to solve the problem
○ Experimental approaches	Describe experimental techniques and method needed to solve the problem
<u>Finding, design achievement</u>	
○ Results and designs	Collect data, review and evaluate the results and design achieved
○ Interpretation	Discuss and interpret results and design to how problem requirements were met
<u>Conclusion</u>	
○ Assessment	Assess the interpreted results and design based on meeting requirements.
○ Recommendations	Provide recommending statements

Report Planning: 2- structuring outline



References:	
o references	A list of read documents used in the report (papers, books, internet,...)
o Bibliography	A list of read documents related to work (papers, books, internet,...)
Appendices	
o Appendix	Any adding information / knowledge related and used

Report Planning: 3- organize information



The topic heading and sections are developed by:

- 1) *Breakdown the task of into various topics*
- 2) *Set the ideas and keywords related to a topic*
- 3) *Set the ideas to form heading and subheading*
- 4) *Set the form of the section contents*
- 5) *Set time and deadlines for writing each topic*

Report Planning: 4- collect information

Selected information for writing is collected based on the following action:


- 1) *List the information needed*
- 2) *List the sources to be cited necessary in text*
- 3) *Find how much information is needed*
- 4) *Arrange information in order of writing sequence*
- 5) *Set actions for gathering information*

Report Planning: 5- writing a draft

When writing consider the following:

- 1) *Use the heading and subheading to address certain topic*
- 2) *Use paragraphs to address certain information*
- 3) *Use short sentences in each paragraph considering information flow*
- 4) *Mainly, use third passive voice for sentence*
- 5) *Follow writing format*
- 6) *Check writing grammar and sentence structure errors*
- 7) *Check spelling mistakes*
- 8) *Revise report draft by independent reader for judgment of writing correctness and information understanding.*

Guideline for Report typing:



- **Margin: 2.5 cm** all around
- **Font size:**
 1. Chapter title: **18 (bold)**
 2. Section title: **16 (bold)**
 3. Subsection titles: **14 (bold)**
 4. Body: **12**
- **Font type: Times New Roman**
- **Spacing: 1.5**
- **Captions:**
 1. **Figures:** under the figures and referred to inside the text.
 2. **Tables:** above the table and referred to inside the text.
- **References:**
 1. **Papers:** Author(s); (year); "Title"; *name of Journal*; vol. no. (issue); pp.
 2. **Books:** Author(s); (year); *Title*; edition. Publisher: city.
 3. **Website:** Title of webpage. Address. Last access date.

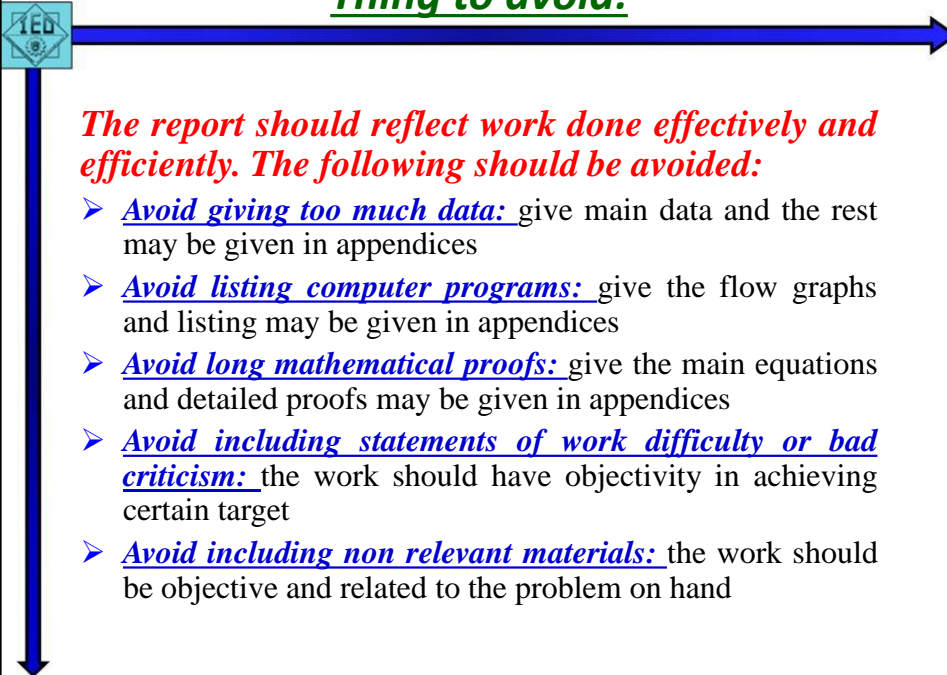
Thing to avoid



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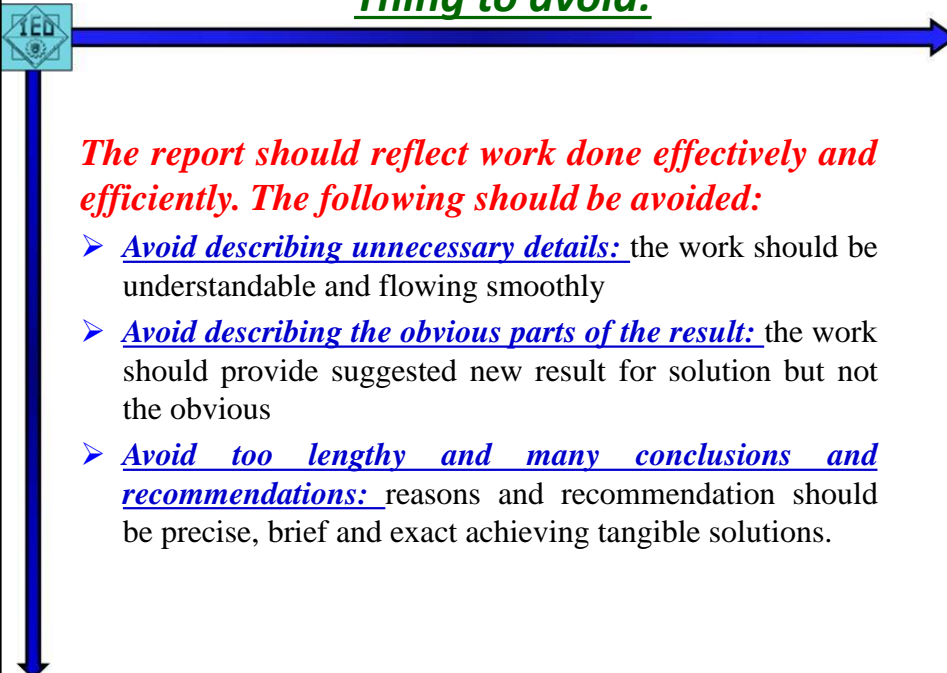
Thing to avoid:



The report should reflect work done effectively and efficiently. The following should be avoided:

- **Avoid giving too much data:** give main data and the rest may be given in appendices
- **Avoid listing computer programs:** give the flow graphs and listing may be given in appendices
- **Avoid long mathematical proofs:** give the main equations and detailed proofs may be given in appendices
- **Avoid including statements of work difficulty or bad criticism:** the work should have objectivity in achieving certain target
- **Avoid including non relevant materials:** the work should be objective and related to the problem on hand

Thing to avoid:



The report should reflect work done effectively and efficiently. The following should be avoided:

- **Avoid describing unnecessary details:** the work should be understandable and flowing smoothly
- **Avoid describing the obvious parts of the result:** the work should provide suggested new result for solution but not the obvious
- **Avoid too lengthy and many conclusions and recommendations:** reasons and recommendation should be precise, brief and exact achieving tangible solutions.