

WRITING ENGINEERING THESIS

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A Story of Butterfly

- Cocoon - A butterfly tries to come out
- I open its cocoon a bit to facilitate coming out
- Butterfly comes out easily – but falls down
- No strength to fly off
- If I had not opened the cocoon, the butterfly would have been patient to struggle hard to come out; this certainly had given a strength to live longer.

Getting success is not easy; you have to be patient, smart and struggle hard. Do not expect your supervisor to do every thing for you.

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A Story on Selection of Minister

1. A king wanted to select his minister
2. He short listed 2 candidates from a long list of people.
3. He wanted to test these candidates.
4. At that time, a ship has come and stationed at the sea port.
5. He called one of these candidates, one morning, unknown to the other.
6. He asked this first candidate to go and get details.
7. The candidate went and came; he said that it is a large ship of nearly 2 Km long; they wanted to buy commodities from us.
8. King: Good, what are the commodities? The candidate went and came back. He told they wanted to buy palm oil and sell sandal wood.
9. King: Do we get any profit out of this business? The candidate went out and to compare the costs; he returned and said not much of profit.
10. King: Go on-board and find their activities. After returning, the candidate said, they are enjoying and they are good in hospitality.

10. In this way of testing, day time was over and King finished his interview
11. The next day, King called the next candidate and asked him to go and get details of the ship anchored at their sea port.
12. After a long time, the candidate came to the king; the king was annoyed of his delay and expressed his dissatisfaction. The candidate was polite and expecting for king's questions; the king asked him what details he has collected.
13. He started to present his collection of details with lot of interest :
The ship is reasonably large 2.3 Km long 1.2 km broad with three decks. They wanted to do business with us in oil commodities in exchange of sandal wood. The sandal wood is of good quality. The business with them is not profitable but we can get very good market if we process the wood thereby we can create many jobs to our villages. There are about 2000 security personals on board now seems to be enjoying. They have modern weapons. Our security personal at the port are only 500 with conventional weapons. We should be careful.
14. The King appointed this candidate as his minister and asked him to proceed with equipping and strengthening the personals at the sea port.

What ever paper you go through, get as much details from the paper as possible.

You should be able to answer all questions by your supervisor to demonstrate your capability and to make him suggest what to do next.

**DO EVERY THING WITH AN
INTEREST NOT WITH AN
AVERSION**

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Master Research

A Master thesis has a new concept and application.

eg:

Range sensing, artificial intelligence, kinematic analysis and a GPS can all be combined in a mobile robot navigation to survey an unknown area and to create a mapping of objects scattered in this area.

Followed by exhaustive experimentation indoor and out door. Come out with a product. Compete in exhibitions.

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A Ph D Research

A Ph D Thesis has a new concept in each chapter followed by applications. The concepts are related to one another to generate a final outcome.

eg:

A research towards the "Development of a new intelligent control system for chemical industries" can have chapters on

Investigating exothermic heat.

Fuzzy logic application in controlling the exothermic heat.

Compensating the effect of unpredictable thermal delay while controlling of exothermic heat

Compensating the effect of unknown parameter variations

Exhaustive experiments in the production of resin adhesives.

End with a proposal, product or a process to demonstrate.

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Writing your thesis (general advice)

- **Writing for others, especially external examiners.** (write systematically, don't bring long descriptions, avoid too much discussions on less important points)
- **Don't take any thing granted** (any statement has to be supported by your derived results, or from earlier references)
- **Focus on your contributions** (do not bring details on aspects that exists in books; no tutorial components; actual work is to be focused with all necessary details; do not create a sleepiness in your readers)
- **Answer any possible questions then and there** (answer all possible questions that may arise while a reader reads your thesis)
eg: "Crisp output is then derived" A questions arise; How? Sugeno's approach (Sugeno, 1965) is applied to derive the crisp output.

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Writing your thesis

- **Reveal your clear understanding** (do not create a doubt that you are escaping from details, explain all details in your findings; Equations, figures, graphs are to be neatly discussed; any approach unconventional or of your own is to be strongly emphasized)
- **Indicate difficulties and struggles** (indicate briefly, in an intelligent way, the difficulties you have faced in collecting data, amount of data, computation complexities, developing software, etc; this is needed to show how you overcome a hardship (eg: EEG Measurements)
- **Language** (incorrect spellings and grammar errors irritate the examiner; high quality of thesis is marred by these; proof read again and again; seek assistance of your friends who are good in language)

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Writing your thesis

- **Neatness** (figures, photographs, tables – to be clear and appealing; Ref, Fig and Table citations are to be properly organised; Chapter title, section heading are to be catching; no repeating figures etc. Use a good equation editor; maintain one format and be consistent)
- **Don't spoil reputation** (of your supervisor, yourself and of the University by a bad preparation of thesis)
- **Keep copies** (keep extra copies of your writing in a CD drive / thumb drive – specially allocated for your thesis)
- **Don't be upset** (when your supervisor gives very critical comments and finds too many errors in your writing (or even throws the chapter writing on you !!), take pleasure in improvement)

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Writing a thesis seems to be a long, difficult process; this is because

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Writing a thesis seems to be a long, difficult process; this is because it is in fact a long, difficult process.

Be patient and work hard

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Thank you

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