Introduction to Computer Engineering (CEG): *Smart people build the smart future!*

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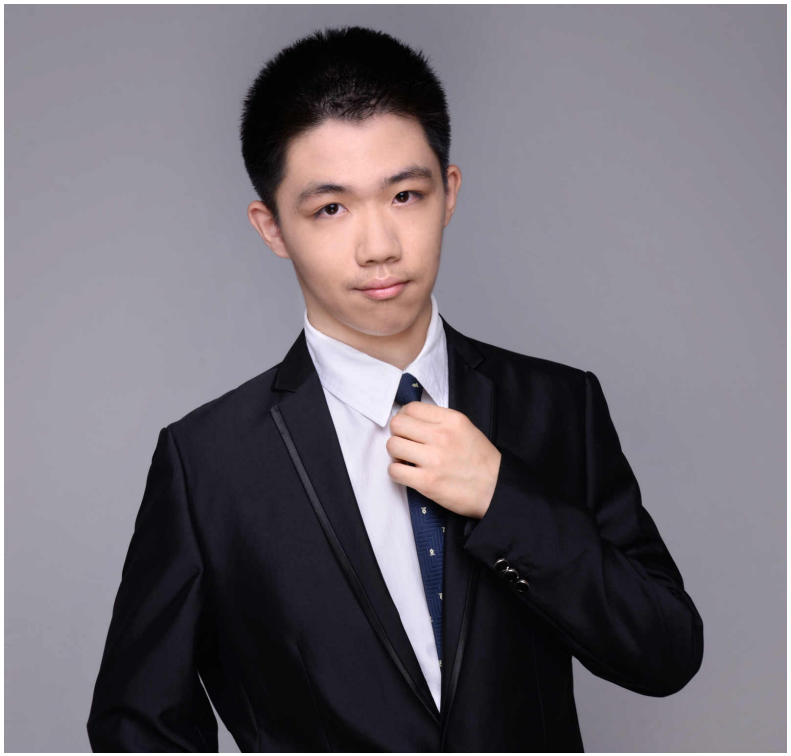
End

https://yunpengn.github.io/ceg.pdf

Overview

1. About me
2. What to learn in CEG?
   - What is CEG
   - Curriculum
3. CEG or CS?
4. Regarding your APC examination

About me



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Contact me

Contact Information

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(Include your real name when adding me.)

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What is CEG

What is Computer Engineering?

- Computer engineering is a discipline that integrates several fields of electrical engineering and computer science required to develop computer hardware and software.

Conclusion

- Computer engineering = Computer hardware + Computer software.

What is CEG

So why?

- Human beings have experienced industrial revolution twice till now:
  - 1st industrial revolution: steam power
  - 2nd industrial revolution: electrical power
- When will we experience the next one?
  - 3rd industrial revolution: computational power
  - Cloud computing, Internet of Things (IoT), 5G, ...

What is CEG

Thus...

- We are in the midst of the 2nd and 3rd.
- We sometimes need people with knowledge in both electrical power and computational power.
- We need you: **Computer Engineering students**!

What is CEG

What is CEG at NUS?

- Computer engineering (CEG) is a multi-disciplinary programme that is jointly offered by Department of Electrical & Computer Engineering, Faculty of Engineering and Department of Computer Science, School of Computing.

Conclusion

- CEG $\approx$ Electrical Engineering (EE) + Computer Science (CS).

What is CEG

Why $\approx$ not $=$?

- Everyone has the same **4-year** at NUS.
- Every major will be finished within 160 MCs (modular credits).
- How can you finish two majors while others finish only one?

Two approaches

- Learn both, but learn less

  or
- Always ***overload***, work harder than others.

What is CEG

Example

Let's say there are two students specialized in software engineering. One is from CS, the other is from CEG.

- The CEG student:
  - CS2103
- The CS student:
  - CS2103, CS3216, CS3217, CS3219, CS4211, CS4218, ...

Then how?

- It all depends on you.

CEG Curriculum

Curriculum Overview

- Major Requirements (108MCs)
  - Year 1 common modules
  - Year 2-3 major technical modules
  - Internship - 6 months (10MCs)
  - Capstone project - CG4002 (8MCs)
  - 5 Technical Electives - TE (20MCs)
- General Education - GE (20MCs)
- Unrestricted Electives - UE (32MCs)

Notice: The curriculum is being revised. This is based on the latest information availble. However, it may still be very different from your cohort.

CEG Curriculum

Technical Electives - TE

Your 5 technical electives (TEs) should be chosen from the 6 focus areas below. Usually, any 3000 or 4000 level CS/EE modules is possible.

- Communications & Networking
- Embedded Computing
- Large-Scale Computing
- Intelligent Systems
- Interactive Digital Media
- System-On-A-Chip Design

CEG Curriculum

Some interesting CS modules

- CS1101S Programming Methodology
- CS3216 Software Product Engineering for Digital Markets
- CS3217 Software Engineering on Modern Application Platforms

Caution

- These modules can be challenging.
- But they are useful.

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CEG or CS

Should you choose CEG or CS?

- Do you like both software and hardware?
- DO you want to reach breadth or depth?
- Do you like FoE or SoC?
- What kind of peers are you going to meet?

CEG or CS

If you are not sure...

- You can have up to five choices, right?

So...

- Put CS as the first one, CEG as the second one

  or
- Put CEG as the first one, CS as the second one

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Regarding your APC examination

About your CS1010 APC examination

- Some of you may want to take APC examination.
- However, some of you may not.
- It depends on your major.
- Think carefully.

Regarding your APC examination

If you are at Engin (excluding CEG)

- Better take and pass.
- You already know C programming, no need to take it again.

Regarding your APC examination

If you are at Science or Business Analytics(BA)

- It depends on you.
- But your major requires CS1010S, which teaches Python.
- It may be very useful.

Regarding your APC examination

If you are at Information Systems(BA)

- Maybe yes, maybe not.
- Your major requires CS1010J, which teaches Java.
- But you can learn Java in CS2030/40 anyway.

Regarding your APC examination

If you are at Computer Science(CS) or Information Security (ISC)

- No need to take APC actually, but you can.
- Your major requires CS1101S, which teaches JavaScript (Source).
- This module is very famous and useful. You should consider taking it.

Regarding your APC examination

If you are at Computer Engineering(CEG)

- Your major requires CS1010 or CS1101S.
- But as stated before, CS1101S is the one you may want to take.
- However, CEG requires all students to know C programming.

Thus...

- If you want to take CS1101S,
- You need to take APC and pass it.

End

Question?

End

Smart People?

Smart Nation?

Smart Future?

You?

The End