

What you don't Necessarily learn in school

MEE2006 : Introduction to mechanical design - Professor Keun Ryu

2014039616 김명준 | 2017009261 신모세 | 2017008840 김명동 | 2017005578 김세원 | 2017005778 서원준

HIGH FIVE

Justification– Why is this important?

- **To be successful** in engineering career
- There are many things that **do not learn at school**. So we have to be aware of the **additional things on text**.

Outline of the content



01

Technical content 1

Brief Summary - All contents of the “What you don’t necessarily learn in school”



02

Technical content 2

Q1) What is the issues that impacted us more?

Q2) Discuss about how to embrace the needs of an engineering career.



03

Conclusion & The road ahead

What was learned? & What you propose to do next?

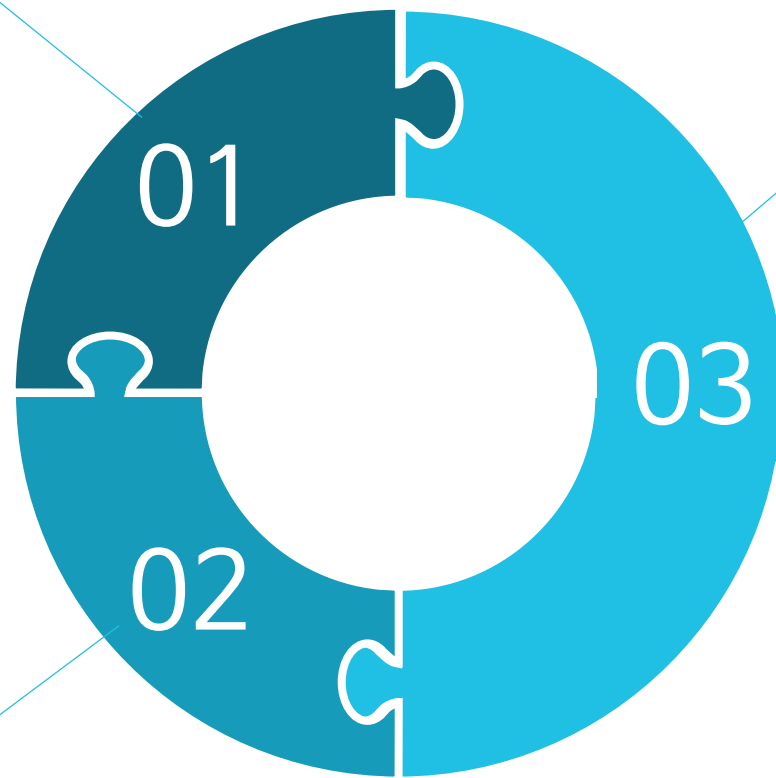
[Technical content 1] – Summary

To know the real engineer environments

- ✓ Learn to be business oriented
- ✓ Understand the values, code of conduct and culture of your particular company
- ✓ Make your manager a success

To get an attitude as an engineer

- ✓ Expect tough multi-disciplinary problems
- ✓ Be open to ideas from everywhere
- ✓ Have unyielding integrity
- ✓ Have fun



Be prepared as a college student

- ✓ Learn to work and network in a new environment
- ✓ Understand the differences between academe and industry
- ✓ Learn to differentiate all over again
- ✓ Support your university and your technical society
- ✓ Manage your career

01. To know the real engineer environments

✓ LEARN TO BE BUSINESS ORIENTED

Developing the mindset that **understand the relationships** between economics of **business** and **engineering decision**.

✓ UNDERSTAND THE VALUES, CODE OF CONDUCT AND CULTURE OF YOUR PARTICULAR COMPANY

Work for a company that **suits your values, code of conduct and culture**.

✓ MAKE YOUR MANAGER A SUCCESS

Respect and work for **your manager**. In return, he or she will help you succeed.



02. To get an attitude as an engineer

✓ EXPECT TOUGH MULTI-DISCIPLINARY PROBLEMS

To solve actual one problems, you should use **several disciplines** simultaneously. **Do not persist in one thing.**

✓ BE OPEN TO IDEAS FROM EVERYWHERE

Accept new ideas from people around you and in history, but **do not give up your idea.**

✓ HAVE UNYIELDING INTEGRITY

As an engineer, you should have **unyielding integrity** to prevent accident from happening.

✓ HAVE FUN

Do the work that you can **enjoy** and have **fun.**

03. Be prepared as a college student

✓ LEARN TO WORK AND NETWORK IN A NEW ENVIRONMENT

Adjust to a **new environment**. Also network and **communicate** with your team.

✓ UNDERSTAND THE DIFFERENCES BETWEEN ACADEME AND INDUSTRY

Understand the **real differences** between **academe** and **industry**.

✓ LEARN TO DIFFERENTIATE ALL OVER AGAIN

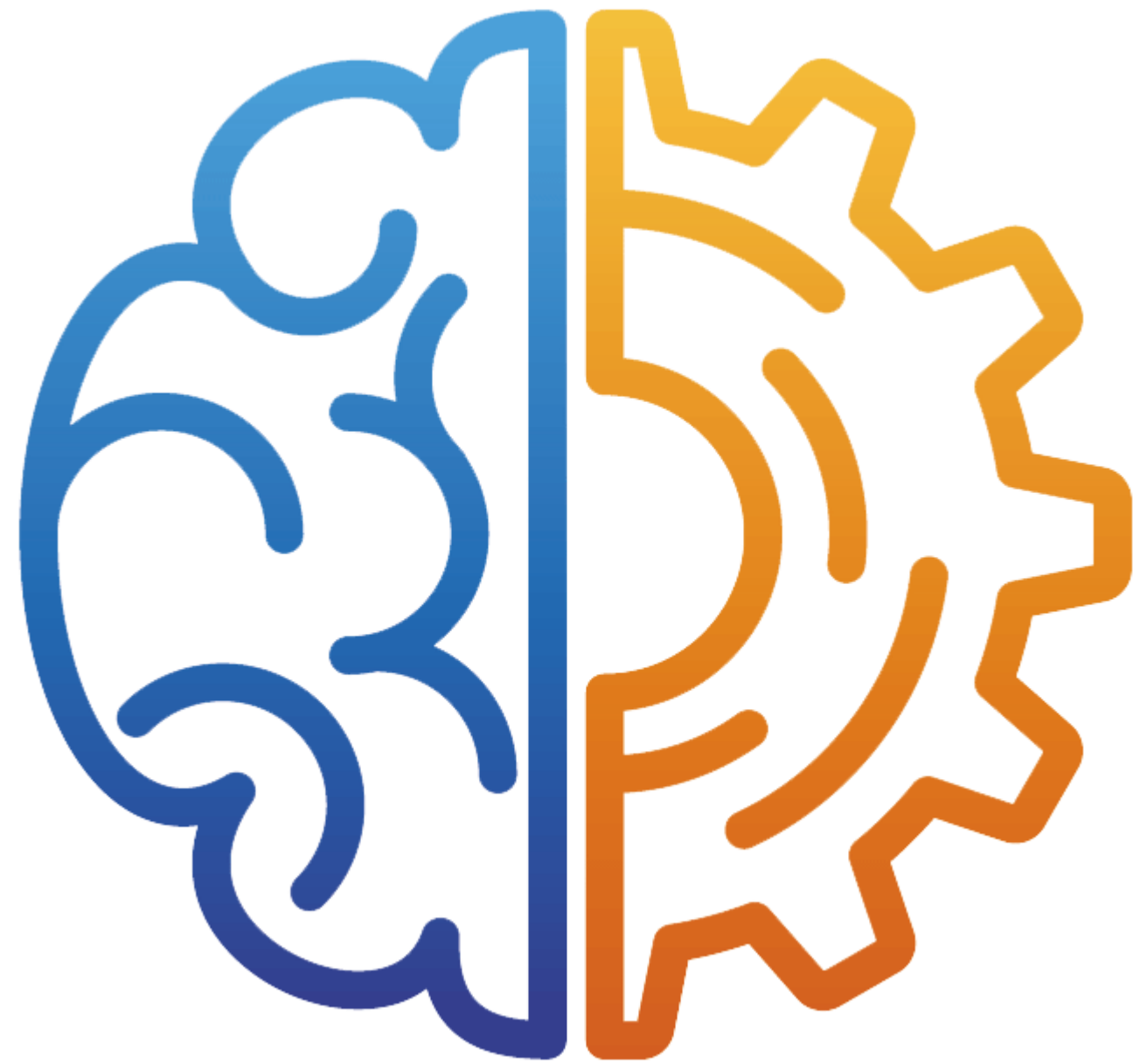
Enhance your strengths to make a **difference** with others.

✓ MANAGE YOUR CAREER

Broaden your experiences and **never stop learning**.

✓ SUPPORT YOUR UNIVERSITY AND YOUR TECHNICAL SOCIETY

Actively participate in your technical society and then you will have **more chances**.



Technical content 2

Q1. Why is this impacted us more?

Q2. Discuss about how to embrace the needs of an engineering career.

[Technical content 2]

Understand the differences between **academe** and **industry** - real differences

Graduate students do independent and original research. They pursue free research that **contributes to science**. They have **no manager**. **Engineers** and engineering managers tend to **form a team** and work in a very different team environment. They are **not free to study** any of the issues that are drawing their attention. Their study is operated **under a set of promotion and management assessment indicators**.

Q1. Why is this impacted us more?

After we graduate, it takes time to accumulate in industry because **it is different that we trained**. So we thought it was a good opportunity to know that we had expected the situation but never considered the exact difference.

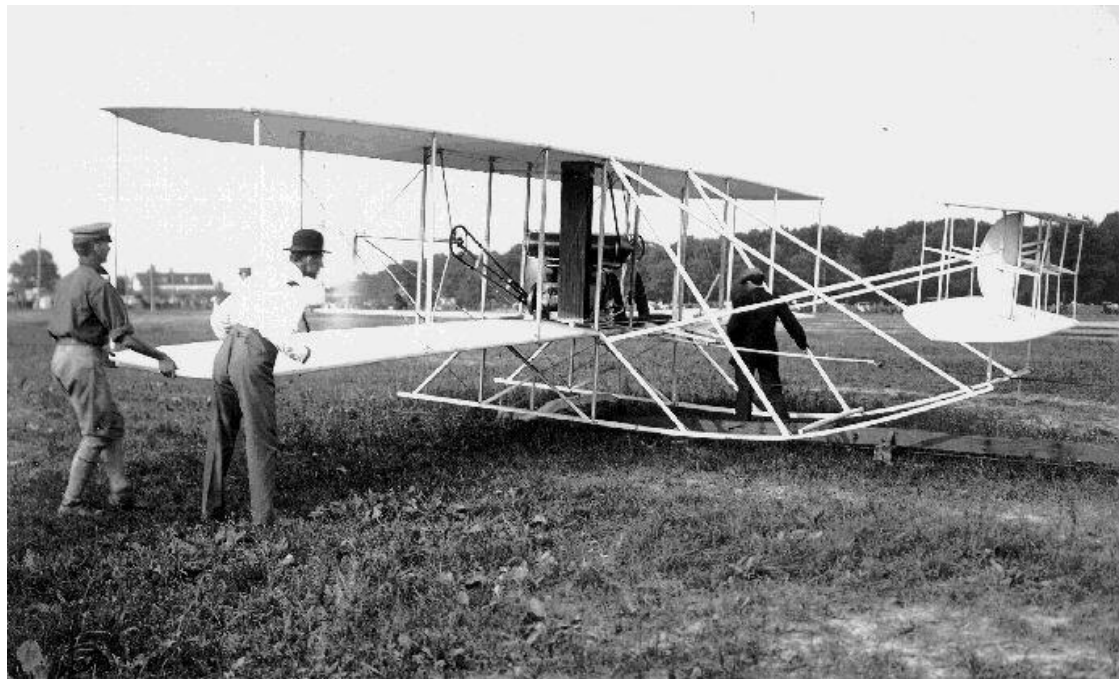
Q2. Discuss about how to embrace the needs of an engineering career.

- ✓ More **individual** oriented vs. More **team** oriented
 - As a university student, you should participate the **extra events** you can do as a **team**.
- ✓ **Develop the equations**, analysis etc. from first principles vs. **Fit a curve** through the data and anchor
 - Be aware that when it is difficult to elicit a formula in theory, you can derive it from the experiment.
- ✓ **Non profit** institution vs. **Profit** institution
 - It is important to learn for academic discipline and your own major, but also **you must be sensitive to the way to create profits through competition and other activities**.

[Technical content 2] History's Bold Forecasts

There are always so many people who are pessimistic about new ideas, but there are also people who are constantly trying to break the paradigms that are taken for granted.

Q1. Why is this impacted us more?



- **Wright brothers** - They **broke the paradigm** that a machine which is heavier than air **can not fly**.



- **Henry Ford** - He **broke the paradigm** that **cars are the exclusive property of the rich** by introducing the concept of conveyor belts. Sometimes, engineers need **to stick to their opinion** about what people think is impossible.

Q2. Discuss about how to embrace the needs of an engineering career.

- Trial to improve the minor problems of daily life can lead to innovative ideas.
- However, this attempt should be performed **within the law of physics**.

[Technical content 2] Get an engineering licenses

To have an engineering licenses is necessary to work as an engineer. It needs at least one.

Q1. Why is this impacted us more?

When we saw **many seniors** studying and acquiring machine related certificates. We felt we should **do so**. However, most of us do not know what kind of certificates were. We felt we **wanted to investigate** about this.



한국산업인력공단
HUMAN RESOURCES DEVELOPMENT SERVICE OF KOREA

Q2. Discuss about how to embrace the needs of an engineering career.

1. National Technical qualification (Department of Mechanical Engineering)

In the **한국산업인력공단**, there are many certifications that can be obtained by students in the Department of Mechanical Engineering.

2. Engineer General Machinery

If you acquire this certification , you may be given **preferential treatment in being hired** public institutions and corporations in terms of compensation, promotion, telegram, and identification security.



Conclusion – What was learned?

01

Requirements

We can learn about the **practical and specific requirements** of the engineer.

02

Attitude

An **active attitude** is necessary to get requirements that are hard to deal with in school.

03

Reality

We could **look back on** what we are, we can **apply it to our reality**.

We have to recognize and follow the things on the paper!

The road ahead

what you propose to do next

🎯 Difficulties

We did not handle ‘To know the real engineer environments’ part. Because it was hard to find the answer Q2 since we are undergraduate. We want to propose to contact company frequently. It will helpful to know the engineer industry.

🧭 Direction

When we first started our assignment, we only tried to find answers outside of the text. So we failed to grasp the essence of the task. We learned the necessity of finding the answer from the text.



References

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Thank you for
your attention!

