

# What You Don't Necessarily Learn in School **how to embrace the needs of an engineering career**

Introduction to Mechanical Design  
Dr. Keun Ryu

*Team name : 캐리어*  
2017009343 Won Dae Min  
2017009361 Yun Na Hyeok  
2017009789 Ju Jae Wan  
2017009825 Choi Ik Sun  
2017009907 Hong Tae Kyung

## *Justification*



- ✓ To **understand** that there are **differences** between academy and industry.
  
- ✓ To know some **vital aspects in engineering** that are usually learned **after graduation**.
  
- ✓ To know the **needs** of an engineering career and how to **embrace** it.
  
- ✓ To increase probability of **succeeding**.



# *Outline of content*

- ✓ **Justification**
- ✓ **Outline of content**
- ✓ **Technical content**
  - Brief summary of the paper
  - Answers for two questions
    - What is the issue or issues that impacted you more?
    - Discuss about how to embrace the needs of an engineering career.
- ✓ **Conclusions**
- ✓ **The road ahead**

## *Brief summary of the paper*

- ✓ This paper suggest what we don't learn in undergraduate. This paper contains advice to us as seniors of the mechanical engineers.
- ✓ It doesn't say that it is magic recipes that will absolutely guarantee your success in an engineering career, but about twelve listed that come home to advice, it might be to get increase our probability of succeeding.

# What are the issues that impacted us more? - 1

- *Understand the differences between academe and industry*

- **Understanding differences** between academe and industry is important.
- We need to **make an adjustment in mindset** as we enter our engineering jobs.
- Engineer needs to **combine both technical capability and business acumen**. Besides, these need to be **properly balanced**.
- Engineer needs to be **properly balanced** between **research oriented** and **art of engineering oriented** (# *art of engineering?*)
- Third, fourth issues take **years of experience**.
- There is a **great deal of differences** between what is **available in industry and college**. This can frustrate rookies. *Ex) Intellectual Property*

# How to embrace the needs of an engineering career? - 1

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

**Table 2. Some Generalizations Showing Comparison of Academe and Industry**

<u>Academe</u>	<u>Industry</u>
1. More individual oriented	1. More team oriented
2. Is it original work?	2. Can we leverage existing work?
3. Does it contribute to science?	3. Does it contribute to the business?
4. Will it make archival publication?	4. Will it make it into production?
5. Is it interesting to do?	5. Is it worthwhile financially?
6. Develop the equations, analysis, etc. from first principles	6. Fit a curve through the data and/or anchor existing analysis
7. Is it original and complete from scientific (physics) perspective?	7. Is it institutionalized into the system from engineering perspective?
8. Graduate when thesis finished.	8. Meet schedule and budget
9. Publish, publish, publish	9. Customer, customer, customer
10. Sound scientific process	10. Design practices, templates
11. Non-profit institution	11. Profit institution
12. Solve roadblock issues as they occur	12. Identify and manage risks carefully up front with risk abatement plan and critical path scheduling
13. Professors (especially tenured) are independent	13. Formal management process up to shareholders

- **Prepare** by referring to the contents of the table.
- Try to continue engineering study **balanced**.
- Take advantage of the **opportunities** that we can only enjoy in college.
- Make it a basic habit to check **intellectual property** at any situation.

What are the issues that impacted us more? - 2

- *Learn to differentiate all over again, Understand the values*

- **Differentiate** & Understanding “**VALUES**” and “**CODE**”.
- **Special originality** is essential for success. Because nowadays, People who excel only in their area is ordinary.
- It is important to understand **own distinction** and assimilate & be **act of catalyst**.

How to embrace the needs of an engineering career? - 2

*- Learn to differentiate all over again, Understand the values*

- Create the **originality**.
- Making a mistake is not fault. Important thing is **not being frustrated but overcoming**.
- Always, **analyze oneself** and make up for weakness.
- **Be friend with team members.** Because, good mood and trustworthiness with team members improve efficiency.

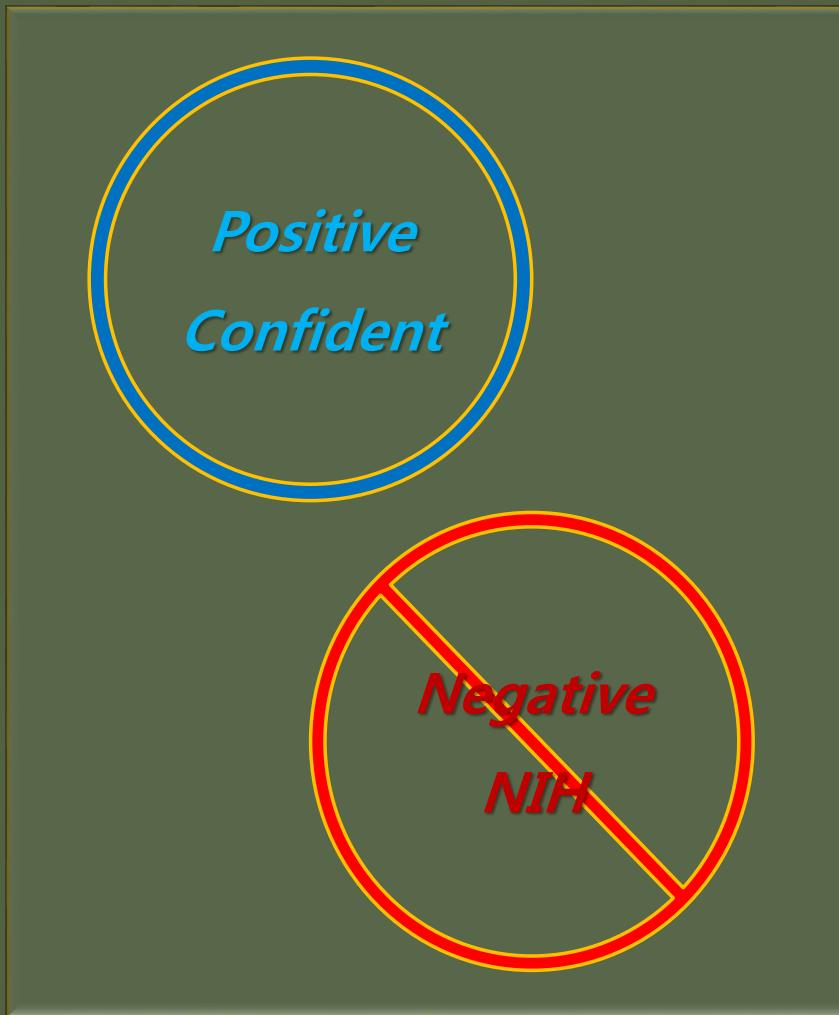
What are the issues that impacted us more? - 3

- *Be open to ideas from everywhere*

- Be **Open minded.**
- When it comes to work together as a team, it is important to **listen** to the other person's story and **accept** the other person's ideas, rather than our own insistences.

# How to embrace the needs of an engineering career? - 3

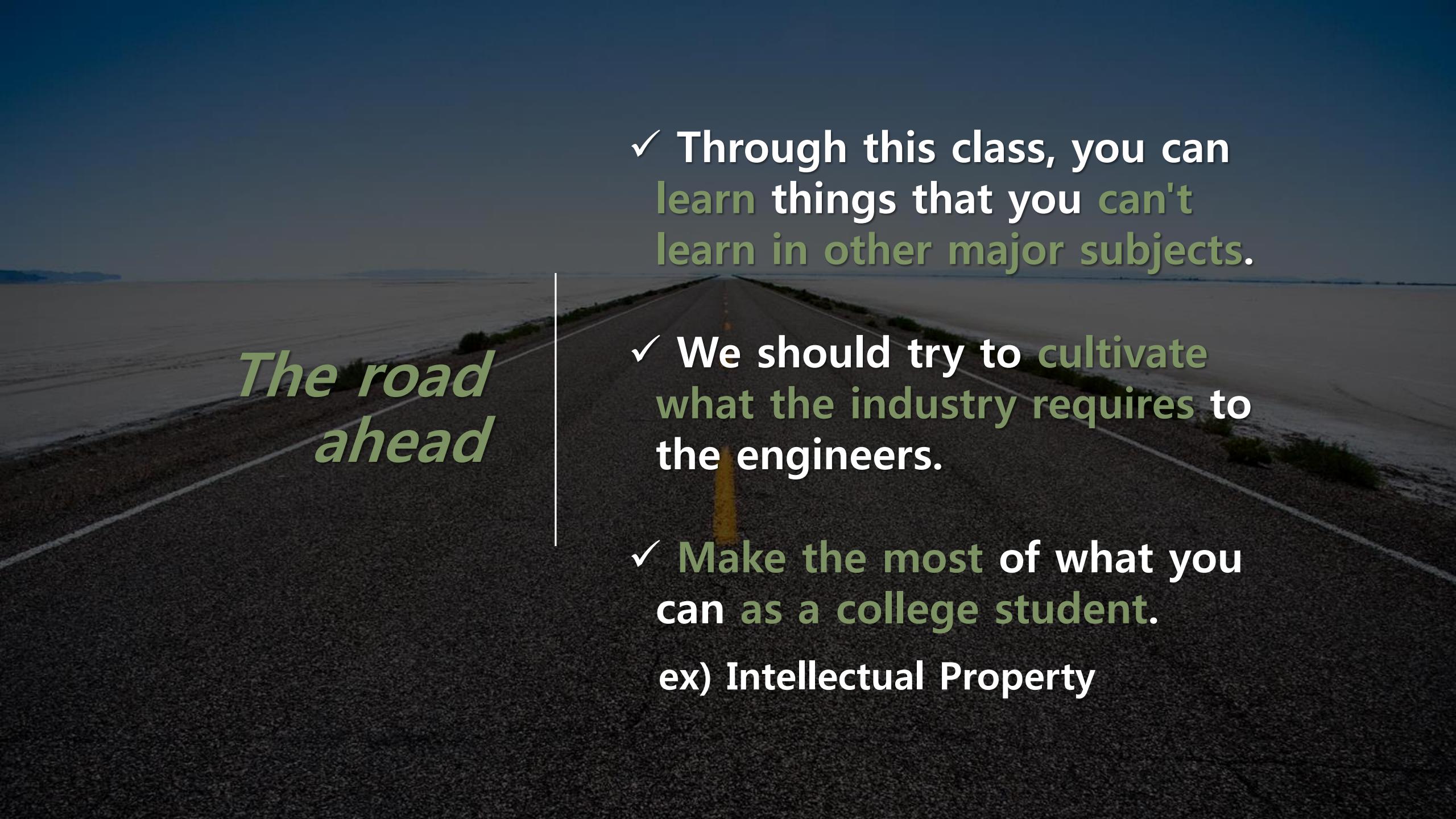
- *Be open to ideas from everywhere*



- Just as location is the most important thing in real estate, the most important thing about **interacting with people** is your "**Attitude**" toward them.
- **NIH(not-invented-here) syndrome** which inhibits free exchange from others should be **rooted out**.  
(∴ Others can have good ideas)
- **Don't laugh** at other people's ideas.  
(∴ It could be a world-changing idea.)

## *Conclusions*

- ✓ Understanding differences between academe and industry is important.
- ✓ Both leadership and fellowship are important. It is important to analyze oneself and to create originality.
- ✓ Not only how to study major studies but also how to treat people is important to become a great engineer.
- ✓ We should take advantage of the opportunities that we can only enjoy in college.



## *The road ahead*

- ✓ Through this class, you can learn things that you can't learn in other major subjects.
- ✓ We should try to cultivate what the industry requires to the engineers.
- ✓ Make the most of what you can as a college student.  
ex) Intellectual Property

# References

- [1] Wisler, David C. "**Engineering-What You Don't Necessary Learn In School.**" Proceedings of ASME Turbo Expo 2003 Power for Land, Sea, and Air. GT2003-38761: pp. 1-10. Atlanta, Georgia, June 16-19, 2003. DOI: 10.1115.  
<http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=1576576>
- [2] Image, <http://sunnylang.tistory.com/1546>
- [3] Image, <http://nerdywithchildren.com/making-diy-jigsaw-puzzles-piece-by-piece/>
- [4] Image, <http://wlpapers.com/empty-road.html>

Thank you