

Innovation, Entrepreneurship and Ethics in Engineering Education

HC Man

Dean, Faculty of Engineering



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學

Opening Minds • Shaping the Future
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Innovation, entrepreneurship

> Two of the most abused words these days

Myths of Innovation

Where do new idea come from?

Epiphany?

Issac Newton's falling apple?

Einstein's ink?

Archimedes' Eureka?

Budda's tree?

Numerous myths

Myths of Innovation Stories

- > All stories about epiphany are fantasies.
- > The last piece of the jigsaw made the news
- > All previous hard work was not mentioned.

Myths of Innovation

Possible facts

- > Newton was bored after long hours of thinking, took a walk in the garden, relaxed, and had a fresh thinking about the problems
- > Archimedes took a bath to relax.....

People do not want to believe that

- > Innovation is the result of hard work with strong foundation of core knowledge

New Myths of innovation

Myth 1

- > University can “teach” students to be innovative
- > Can we?
- > How?

How can we equip our students with the necessary “tools” for him to fly (innovate)?



New myths of Innovation

Myth 2

> You can get rich if you innovate something

> Really?



> How can we help our student to turn a concept, prototype into a business ?

Entrepreneurship

- > Can we integrate this into our engineering curriculum?
- > How can university facilitate the growth?



Are we
supposed to
baby-sit them
with university
incubators?

18 Mistakes That Kill Startups



1. Single Founder



2. Bad Location



3. Marginal Niche



4. Derivative Idea



5. Obstinacy



6. Hiring Bad
Programmers



7. Choosing the
Wrong Platform



8. Slowness in
Launching



9. Launching Too
Early



10. Having No
Specific User in Mind



11. Raising Too Little
Money



12. Spending Too
Much



13. Raising Too Much
Money



14. Poor Investor
Management



15. Sacrificing Users
to (Supposed) Profit



16. Not Wanting to
Get Your Hands Dirty



17. Fights Between
Founders



18. A Half-Hearted
Effort



from
eponymous essay
by Paul Graham
<http://fnt.vc/PG-01>

visualized by
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Build with Annalogy, icons made by Freepik

Ethics



THERE IS
NO RIGHT WAY
TO DO
A WRONG THING.



Ethics

> Curriculum again?

Dilemma

- > Do we have enough time to teach all these plus the core knowledge of Engineering?

Pick their brains

Prof Larry Shuman, University of Pittsburg

Prof Randy Collins, Clemson University

Prof KC Chan, Hong Kong Polytechnic University

Prof Aldert Kamp, TU Delft