Suggestions for “Good Teaching” for PhD Students / Ext. Lecturers

Johann W. Kolar
Power Electronic Systems Laboratory
ETH Zurich

Jan. 31, 2019
Lecturer (1)

- Students “Feel” if You are Motivated!
- Be Authentic!
- Watch Your Body Language – Be “Open”!

TED: M. Bowden - https://www.youtube.com/watch?v=1zp8H_Dd40

Source: www.collegetimes.com/life
Lecturer (2)

→ Carry an Inner “Smile” – Your Voice will Sound Different!
→ Smile Generates Smile = Happiness (Mirror Neurons)
→ One Smile = Same Brain Stimulation than 2000 Bars of Chocolate

TED: R. Gutman -

Source: www.dasgehirn.info
Lecturer (3)

→ Carry an Inner “Smile” – Your Voice will Sound Different!
→ Smile Generates Smile = Happiness (Mirror Neurons)
→ One Smile = Same Brain Stimulation than 2000 Bars of Chocolate

Source: www.wired.com/2012/02

→ TED: R. Gutman -
Lecturer (4)

- Carry an Inner “Smile” – Your Voice will Sound Different!
- Smile Generates Smile = Happiness (Mirror Neurons)
- One Smile = Same Brain Stimulation than 2000 Bars of Chocolate

TED: R. Gutman -

Source: www.climatedesk.org/politics/2016/12
Lecture Organization (1)

- Clear “Line of Thoughts” / “Storyboard” – Connect the “Pieces”!
- Imagine Question of Students & Provide an Intuitive Answer

TED: The “Golden Circle” - S. Sinek –
https://svenruoss.ch/2012/12/30/the-golden-circle-why-how-what
Lecture Organization (2)

- Clear “Line of Thoughts” / “Storyboard” – Connect the “Pieces”!
- Imagine Question of Students & Provide an Intuitive Answer

TED: The “Golden Circle” - S. Sinek –
https://svenruoss.ch/2012/12/30/the-golden-circle-why-how-what
Lecture Organization (3)

- Clear “Line of Thoughts” / “Storyboard” – Connect the “Pieces”!
- Imagine Question of Students & Provide an Intuitive Answer

Preparation Time = Lecture Time (for Each Lecture)

Source: http://mentalfloss.com/article/92127/
Lecture Organization (4)

- Split the Whole Semester into 3-5 Topical “Clusters”
- Restrict & Simplify to the Core Themes
- Use Diagrams! = Engineering “Language”
- Write Formulas in “Low Entropy” Form
- PPT Slides (if any) of Good Quality

Source: www.slidegenius.com/blog/

→ Dilbert: Power Point Presentation –
https://www.youtube.com/watch?v=4y_jlqQUr20
Lecture Organization (5)

- Split the Whole Semester into 3-5 Topical “Clusters”
- Restrict & Simplify to the Core Themes
- Use Diagrams! = Engineering “Language”
- Write Formulas in “Low Entropy” Form
- PPT Slides (if any) of Good Quality

\[ R_e = \frac{u_p}{i_p} = \frac{\ddot{u}^2 u_s}{\dot{i}_s} = \ddot{u}^2 R_2 \]

- It’s (also) the “How” You Teach NOT (only) “What” You Teach about, which Attracts / Inspires Students!
**Exercises**

- Motivate the Students with **Practical Examples!**
- Provide an **E-mail Contact** to Students for Asking Questions
- Schedule **Extra Question Time** Before Exams

I hear, and I forget;
I see, and I remember;
I **do**, and I understand.

- Confucious

- Provide a Short **Summary of Related Lectures** to the Students
Future Challenges (1)

- Generation i-Phone
- 2-3 mins of Attention Span
- Reading 10 Lines Causes Headaches
- Future: Only Videos / No Books? – I am VERY Concerned

TED: iGen: The Smartphone Generation – J. Twenge
https://www.youtube.com/watch?v=UA8kZZS_bzc
Future Challenges (2)

- Get in Direct Personal Contact
- Be a Teacher / Tutor / Mentor / Trustworthy “Friend”
- Create a “Different” Environment (No i-Phones)
- Split into Small Groups / Project Based Teaching

Source: www.pinterest.ch/pin/413134965812502102/

- S. Sinek – Millennials in the Workplace
  https://www.youtube.com/watch?v=hER0Qp6QJNU
Future Challenges (3)

- Interdisciplinarity
- VDMA Study – “Ingenieur*innen 4.0”
- Joint Lectures in EE / ME / INF (first 2 Semesters)

Dr. Eckhard Heidling, ISF München
Dr. Klaus Schmierl, ISF München

Ingenieurinnen und Ingenieure für Industrie 4.0
Ausgewählte Ergebnisse der qualitativen empirischen Erhebungen der IMPULS-Studie

Erfahrungsaustausch Maschinenhaus, 25.06.2018, VDMA, Frankfurt

https://bildung.vdma.org/documents/14969637/26503651/2018%2006%2025_Pr%C3%A4sentation%20ISF_Studie%20IngenieurInnen%20f%C3%BCr%20I4.0_1530861315036.pdf/b19c7143-b97a-7061-80ce-300d4154d1e6
IF YOU THINK IN TERMS OF A YEAR, PLANT A SEED; IF IN TERMS OF TEN YEARS, PLANT TREES; IF IN TERMS OF 100 YEARS, TEACH THE PEOPLE.

CONFUCIUS

Source: quotepixel.com/picture/inpirational/confucius/