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

Johann W. Kolar
Power Electronic Systems Laboratory
ETH Zurich

Jan. 31, 2019
Lecturer
Lecture
Exercises
Future
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=1zpf8H_Dd40
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

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 -
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](https://svenruoss.ch/2012/12/30/the-golden-circle-why-how-what)

Source: www.shopharptoons.com/products/
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)
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

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

Source: www.hackscience.net/blog/

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

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/