

DTU



Arnold Knott, DTU Elektro, 2021

Assessment Adventures

Agenda

Background

Inspiration

Assessments

Conclusion

Background

Section 1

Background

Background

Course metrics

31003 - Electric Circuits 2

- mainly 2nd semester B.Sc.
- approx 80 - 90 students
- 5 ECTS points

- 8 lectures
- 4 lab sessions
- 1 guest lecture

- course responsible since 2019
- Material on [gitlab](#) and [YouTube](#)

31351 - Basic Power Electronics

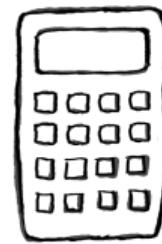
- 4th semester B.Sc. & B.Eng.
- approx 20 - 40 students
- 5 ECTS points

- 8 lectures
- 2 lab sessions
- 2 guest lectures
- 1 group presentation

- course responsible since 2011
- Material on [gitlab](#) and [YouTube](#)

Background

Addressing various learning styles



Section 2

Inspiration

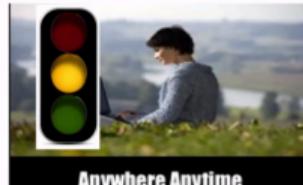
Inspiration

My industry background

Inspiration

Deans education brainstorming

Where is DTU in Education 4.0?



Anywhere Anytime



Personal



Flexible Delivery



Peers and Mentors



Why/Where not What/How



Practical Application



Modular and Projects



Student Ownership



Evaluated not Examined

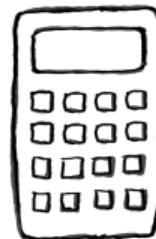
www.theGeniusWorks.com

Section 3

Assessments

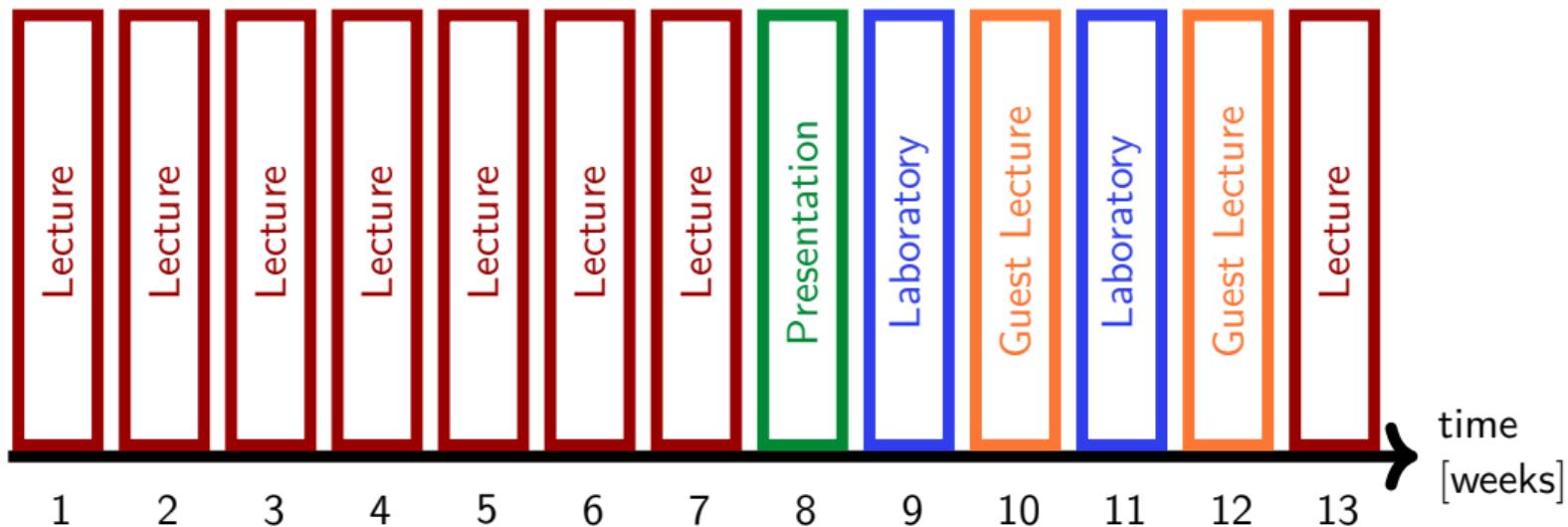
Assessments

Assessments



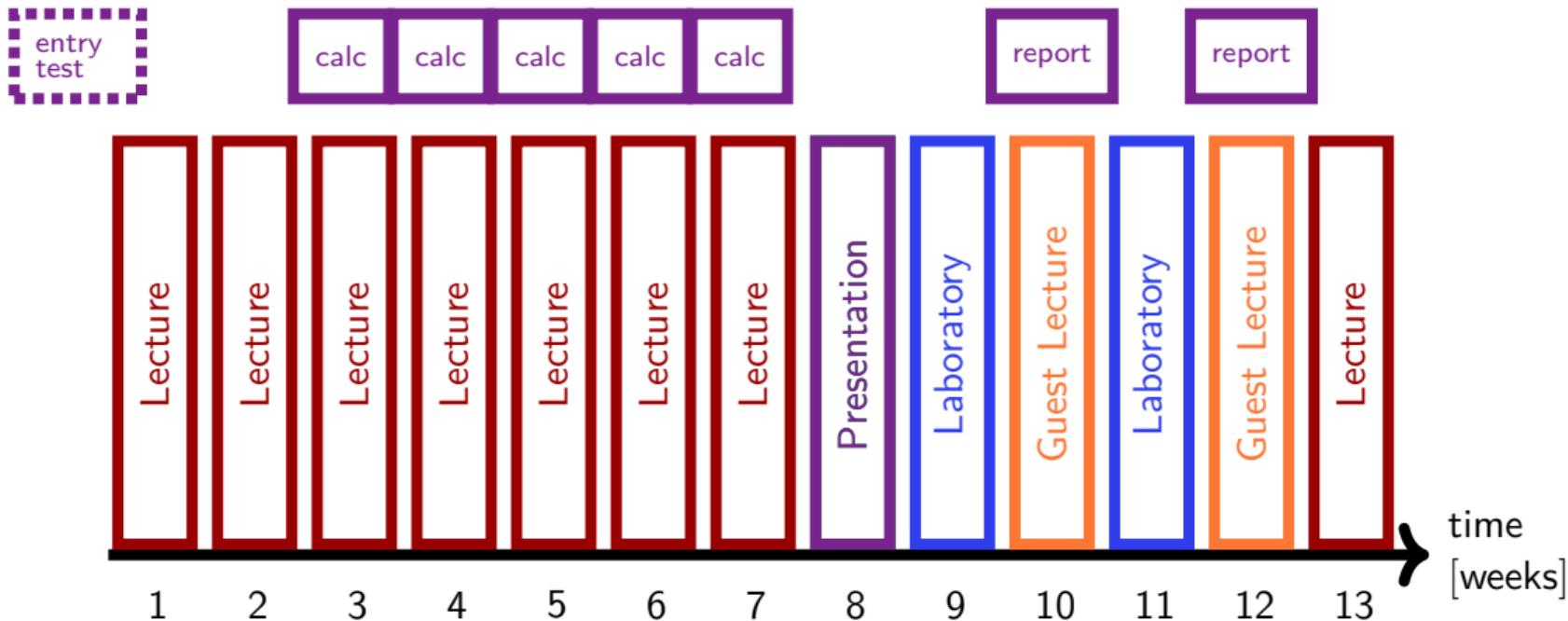
Assessments

Course overview



Assessments

Course overview



Assessments

Oral assessment: group presentations

Formative assessment

- emphasis on group work
- continuously during the semester
- no *flying under the radar*
- practice presentation skills

Summative assessment

- analysing unknown circuits
- free choice of methods and tools
- listen to each other, learn from each other

Assessments

Calculation assessment

Formative assessment

- calculation exercises
- some verified through simulation
- and some also verified through measurements

Summative assessment

- short calculation problems: approximately 1 - 3 steps only
- 5 sets of about 7 individual *numeric* problems + 1 *design problems*
- for 120 students $\Rightarrow \approx 4.200$ correct solutions per semester
- numerical problems:
 - 31351: multiple choice
 - 31003: numeric hand-in

Assessments

Calculation assessment - demo

Assessments

Hands-on and written assessment: lab reports

Formative assessment

- read the safety instructions
- predicting measurement results based on theory
- feedback on theory

Summative assessment

- explain potential differences between theory and practice
- correct misunderstandings from theory
- based on the groups measurement results
- individual contributions to report
- students can freely choose distribution of the tasks

Conclusion

Section 4

Conclusion

Conclusion

Summary

- 4 different learning styles addressed
- 3 different assessment types
- formative and summative assessment
- automated individual calculation problems

Lessons learned and future work

- use the right tools for the right job
- version 2 could be problems as web page
- embed this into learning management system

Conclusion

Student feedback

- communicating rough plan at the beginning of the semester
- **timely** communication of specific expectations
- glad to be kept on the toes throughout the semester
- tolerances in numerical problems
- design problems can be challenging

Conclusion

Thanks for watching!

This presentation is available at

https://gitlab.gbar.dtu.dk/ELE_group/teaching/teaching_adventures.git
(login with your DTU credentials as LDAP user)

includes an example of the code for the automatic generation of exam problems