

DTU



Arnold Knott

Teaching Adventures

Spring 21: Normal use of DTU Learn

The screenshot shows the DTU Learn course interface for '31003 Electric circuits 2 Spring 21'. The left sidebar lists course sections: Overview, Bookmarks, Course Schedule, Table of Contents (139 items), All lecture material (3 items), Signals (29 items, selected), Time Domain (8 items), Frequency Domain (7 items), Sources (3 items), Power (4 items), Three-Phase (4 items), Components (18 items), Circuits (29 items), Applications (51 items), and Exercise Solutions (9 items). The main content area is titled 'Signals' and includes fields for 'Add dates and restrictions...' and 'Add a description...'. It features three buttons: 'Upload/Create', 'Existing Activities', and 'Bulk Edit'. Below these are sections for 'Week 1' (Checklist) and 'Time Domain'. The 'Time Domain' section contains a table of activities:

Type	Name	Status
PDF document	presentation_signals_time_domain	✓
Video	Signals: Characteristics and Examples	✓
Quiz	?Signals characteristics and examples?	✓
Video	Signals: Parameters	✓
Quiz	?Signals: parameters?	✓

Examples

- YouTube
- Learn quizzes
- Learn chat ⇒ **NO** posts
- Learn checklists ⇒ popular

Spring 21: Evaluation

I've learned a lot in this course (all courses):

2021



What do you think about those tools? (2021)

DTULearn



Discord



MSForms



YouTube



Lab



Fall 21: MS Teams with embedded Sharepoint sites

The screenshot shows a Microsoft Teams interface. On the left, the sidebar lists various teams and channels. The main area displays a SharePoint site titled "II. Electromagnetic Compatibility". The site contains several posts from a user named Arnold Knott. One post includes a large amount of text and a link. Another post is titled "EMC Test Setups". A third post contains text about conducted emissions, radiated emissions, conducted immunity, and radiated immunity. The fourth post is titled "EMC Background". The fifth post is another "EMC Background" post. The right side of the slide has an orange header bar with the word "Examples".

Examples

- Sharepoint to share learning material
- MS Teams chat ⇒ **very little posts**
- ⇒ not really a success!

Spring 22: dissable Learn and embed version 1 of own interface.

The screenshot shows a custom LMS interface for a course named "Arnold Knott- Sandbox". The top navigation bar includes links for "My Course", "Announcements", "Peergrade", "Assignments", "DiscardChannel", "Content", "KryddkasseAaN", and "Help". Below the navigation is a timeline showing "Week 1" (1 day ago), "Week 2" (12 days ago), and "Week 3" (21 days ago). A yellow box labeled "Before Lecture" contains instructions: "Please conduct all of these tasks before the lecture! ..." followed by a "Literature" section with the task "Read chapters 1 and 2 in textbook.". A grey box labeled "Feedback: What do you think about this?" contains the message "Arnold would like to hear what you think about this sandbox implementation! Please give me keywords below.". A green box labeled "Put in your keywords here:" features a "Mentimeter" poll titled "What do you think about this implementation?". A blue input field is labeled "Enter a word..." and has a note "You can submit multiple answers". A blue "Submit" button is at the bottom. To the right, a grey box labeled "This is the feedback, collected so far:" displays the submitted responses: "great" and "looks good". The main content area is divided into sections: "First section of this page" and "First subsection of this page". At the bottom, there are two more boxes: "Arnold Knott About Me" (pink background) and "Are you awake?" (green background).

Integration of mainstream tools

The collage consists of four square screenshots arranged in a 2x2 grid:

- Top-left:** A video player showing a man with glasses and a beard, identified as Arnold Knott About Me. The video has a play button icon.
- Top-right:** A Microsoft Forms survey titled "Are you awake?". It asks "What's the name of the teacher?" and includes a text input field, a checkbox for "Send me a mail with my answers", and a "Send" button.
- Bottom-left:** A screenshot of a LaTeX editor showing the derivation of a formula involving voltage and current. The formula is $(t) = v(t)i(t)$, which is equated to $\frac{\hat{V}I}{2} \left[\left(1 - \cos(\varphi_v + 2\varphi_i) \right) \cos(\varphi_v - \varphi_i) \right]$.
- Bottom-right:** A meme featuring a cat crossing a road with the text "animals who learned during the pandemic" overlaid.

Examples

- YouTube
- Microsoft Forms
- Discord channels
- Mentimeter
- PDF-preview
- slides, pictures, ...
- basically every tool, that has an `<embed>`, a `<iframe>`, API, CLI or similar.

Student activation

During Lecture
We do all of this, during the lecture. If you can't finish it, please catch up after the lecture! ⚠

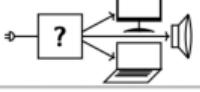
Introduction to Electronics from Arnold
Welcome - examples of applications - questions?

Results from your inputs above
Go to www.menti.com and use the code 2047 5093

What do you think about this implementation? Menti

great
looks good

Introduction Properties
Exercise 1.1 Properties of power converters
What would you, as a user and/or as a coming engineer expect from power converters?

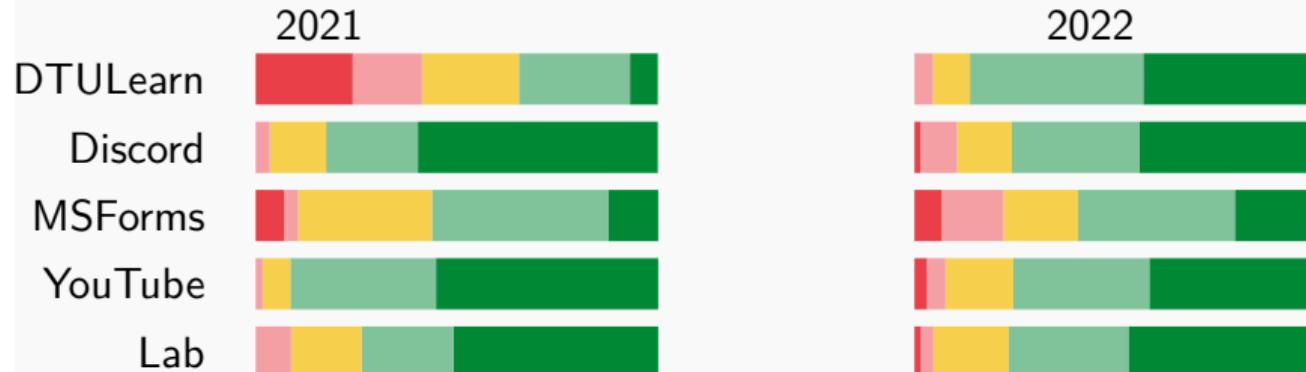


Arnold og mæn under kanal efter skrifte tabte? og nu fra another tab within DTU Learn

Arnold and now from another tab within DTU Learn

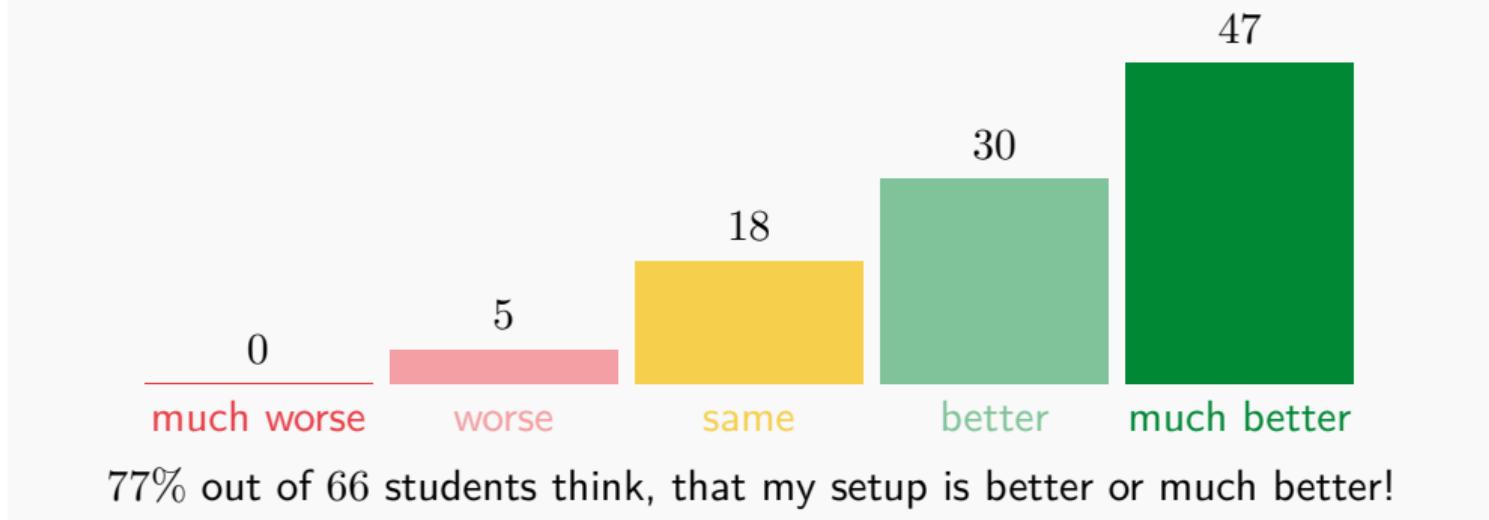
Evaluation Spring 22: before and after

What do you think about those tools?



Evaluation Spring 22: Comparison to other courses

Compared to other courses at DTU - how do you like my setup of DTU Learn, with the frames on the frontpage, the integration of videos, quizzes, and so on?



Version 2: still most of learn disabled and learned Typescript, Cloud, ...

34601 Electric circuits 2 Spring 23 Arnold Knott

Course Home My Course Announcements Assignments Discord Zoom Help

Slides Week 15. Feb

SIGNALS

- Time Domain
- Frequency Domain
- Readings for Fr...
- Fourier Series
- Quiz: Fourier S...
- Spectrum
- Quiz: Spectrum

Sources

- Power
- Three Phase

COMPONENTS

- Resistor
- Inductors
- Coupled Inductors
- Capacitors
- Impedances

chapter 8.2 in textbook

Video

Components: impedance and admittance

Complex Impedances and Admittances

Component	Ohms law	Impedance	Admittance
$R i_R(t)$	$V_R = RI_R$	$Z_R = R$	$Y_R = \frac{1}{R} = G$
$L i_L(t)$	$V_L = j\omega L I_L$	$Z_L = j\omega L = jX_L$	$Y_L = \frac{1}{j\omega L} = jB_L$ with $B_L = -\frac{1}{\omega L}$
$C i_C(t)$	$V_C = \frac{1}{j\omega C} I_C$	$Z_C = \frac{1}{j\omega C} = jX_C$ with $X_C = \frac{1}{\omega C}$ $= \sqrt{2}/j = -1$	$Y_C = j\omega C = jB_C$

Se på YouTube

Power and Energy in Components

Literature

chapter 8.6 in textbook

Quiz

? Components: Impedances and admittances?

Hej, Arnold. Når du indsender denne formular, vil ejeren se dit navn og din e-mailadresse.

1. What's the real part of impedance? (1 point)

conductance
 susceptance
 resistance

Version 2: still most of learn disabled and learned Typescript, Cloud, ...

34601 Electric circuits 2 Spring 23

Course Home My Course Announcements Assignments Dis

Slides Week

SIGNALS

- Time Domain
- Frequency Domain
- Readings for Fr...
- Fourier Series
- Quiz: Fourier S...
- Spectrum
- Quiz: Spectrum

Sources

- Power
- Three Phase

COMPONENTS

- Resistor
- Inductors
- Coupled Inductors
- Capacitors
- Impedances

chapter 8.2 in textbook

Video

Components: impedance and admittance

Complex Impedances and Admittances

Component	Ohms law	Impedance	Admittance
$R i_R(t)$	$V_R = RI_R$	$Z_R = R$	$Y_R = \frac{1}{R} = G$
$L i_L(t)$	$V_L = j\omega L I_L$	$Z_L = j\omega L = jX_L$	$Y_L = \frac{1}{j\omega L} = jB_L$ with $B_L = -\frac{1}{\omega L}$
$C i_C(t)$	$V_C = \frac{1}{j\omega C} I_C$	$Z_C = \frac{1}{j\omega C} = jX_C$ with $X_C = \frac{1}{\omega C}$ $ j = \sqrt{A^2 + B^2} = \sqrt{1 + (-1)^2} = \sqrt{2}$	$Y_C = j\omega C = jB_C$

Se på YouTube

Power and Energy in Components

Literature

chapter 8.6 in textbook

Examples

15. Feb

1 2 3

addds

- professional design
- table of contents
- navigation
- automatically switches to relevant material based on date
- mobile and tablet version
- hosted in Microsoft Azure cloud

Version 2: other view



34601 Electric circuits 2 Spring 23



Arnold Knott

[Course Home](#) [My Course](#) [Announcements](#) [Assignments](#) [Discord](#) [Zoom](#) [Help](#)[Slides](#) [Week](#)

4 1 2 3 4 5 6 7 8 9 10 11 12 13

Before Lecture

During Lecture

Reflection

What do you think about the setup in DTU Learn?



What do you think about the setup in DTU Learn in this course...

... compared to other courses?

[Skip](#)[Submit](#)

Please rate your experience. ↗

Here's how others rated:

[Join at: www.mentimeter.com/ld74r42lw8pp](#)

What do you think about the setup in DTU Learn in this course...

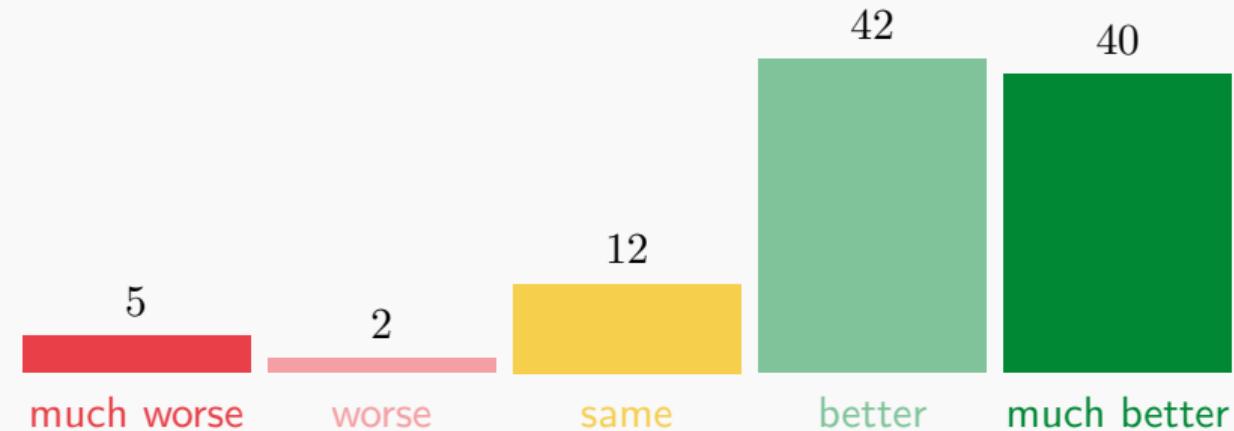
Something went wrong... ↗



Thanks for contributing and please: keep the feedback coming! ↗

Evaluation Spring 23: Comparison to other courses

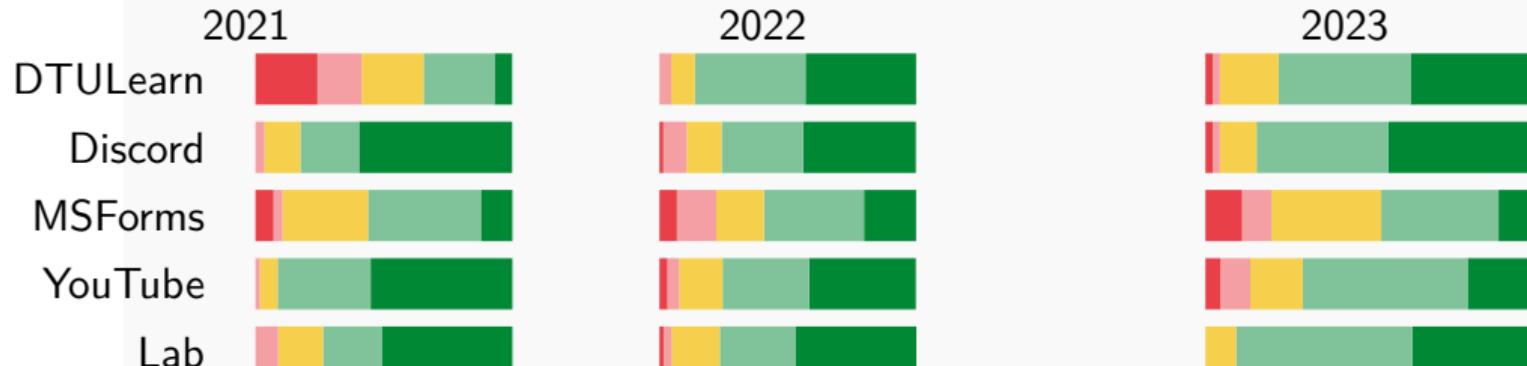
Compared to other courses at DTU - how do you like my setup of DTU Learn, with the frames on the frontpage, the integration of videos, quizzes, and so on?



82% out of 43 students think, that my setup is better or much better!

Evaluation Spring 21, 22 and 23: normal Learn, 1st version and 2nd version

What do you think about those tools?



What students say...

- “Ombygningen af Learn har gjort det meget nemmere at finde rundt i kurset og brugen af Discord har gjort det nemmere at spørge om hjælp samt bare at arbejde.”
- “Arnolds programmering af dtu learn er fremragende og gør faktisk at det kan anvendes til noget fornuftigt! Det giver et meget bedre overblik end man ellers ville kunne få.”
- “Et godt struktureret kursus, og kan godt lide layoutet på Learn da det er intuitivt og mere spændende end den normale side.”
- “Jo mindre Learn jo bedre. Til næste kursushold, bare upload din hjemmeside til dem i stedet, ville højst sandsynligt være lettere at bruge.”
- “Baren med logoer i toppen af Learn fylder for meget..! Kan ikke altid se hele videoen og lign. (Og farverne er lidt voldsomme ;;)). Men kan godt lide opsætningen, bedre end almindeligt DTU Learn.”

Future work - target spring 24

- Create a backend to enable individual progress tracking
- Rework automated exams and couple with student engagement
- Expand to more courses: 1st round with JSON input from teachers
- Expand to more courses: 2nd round with teacher frontend

Potential new features

- couple students' efforts on quizzes (and other tasks) with amount of exam questions => less formative assessments and more fully automated individualisation
- add transcript of YouTube videos to page (makes the videos searchable) and available in any language (use API to YouTube and API to google translate)
- collapse content based on students to-do-list
- auto-translate all content
- add search to course page: search in videos (via transcripts), quizzes, chats, documents, ...

Sources...

... of slides:

https://gitlab.gbar.dtu.dk/ELE_group/teaching/teaching_adventures.git

... of web front end (version 2):

<https://lab.compute.dtu.dk/knott/knottcoursesweb>

... of web front end (version 1):

<https://gitlab.gbar.dtu.dk/knott/AKNcoursesWeb.git>

(login with your DTU credentials as LDAP user.)