



ULB



VUB



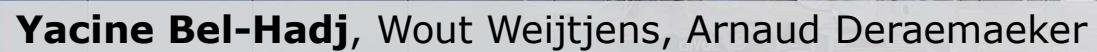
VRIJE
UNIVERSITEIT
BRUSSEL



MECHANICAL VIBRATIONS



ORGANISATION EXERCISE SESSIONS



Yacine Bel-Hadj, Wout Weijtjens, Arnaud Deraemaeker

MECHANICAL VIBRATIONS

6 EXERCISE SESSIONS – 1 PROJECT

- Six collective sessions @ ULB
 - **Bring your laptop!**
 - **Presence is not strictly compulsory, but strongly advised!**
 - Especially if you are experiencing accessing the JupyterHub
 - **Submit each completed session to pass this**
 - Most of you will do so at the end of the exercise session itself
 - Deadline 1 week after the exercise session
- Final individual project – to be defended during oral exam

Contact person: Yacine Bel-Hadj (yacine.bel-hadj@vub.be)

MECHANICAL VIBRATIONS

JUPYTER NOTEBOOKS

Labs are organised using Jupyter Notebooks (Python)

Experience with Python is a bonus but not a must.

First session serves as an introduction to this way of programming.

Notebooks are hosted online, no need to install anything

The screenshot displays a Jupyter Notebook interface. At the top, there is a text box explaining the goal: to solve a differential equation for a mass-spring-damper system. Below this, Python code is shown, including the definition of parameters (mass, stiffness, damping), the use of the `solve` function from the `scipy.integrate` module, and the plotting of the solution. The plot shows the displacement $x(t)$ over time t (s). The displacement starts at 0.2 and decays towards zero, with oscillations that dampen over time. The plot is titled 'x(t) vs t(s)' and has axes labeled 'x(t)' and 'Time (s)'. Below the plot, there is a text box asking the user to change the system parameters and observe the effect on the response. The notebook also includes a section for parameter sliders, with 'Damping (N/m-s)' set to 6.00, 'Stiffness (N/m)' set to 36, and 'Mass (kg)' set to 1.0. The 'Run' button is visible below the sliders.

EXERCISE SESSIONS

CANVAS REGISTRATION

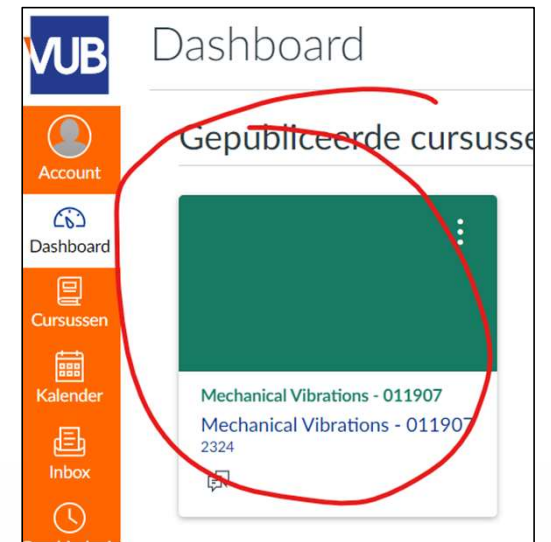
In order to join the exercise sessions you need to join the course on VUB's Canvas: <https://canvas.vub.be/>

- For VUB Bruface students this is likely already registered
- For ULB Bruface students, probably have a VUB account (@vub.be) but not yet registered for the course
- None of both? → Register as a guest-student: [Link](#)

Not yet in **Mechanical Vibrations**?

Goto: [Courses](#), make sure you are in **2425** edition

More info on registering for a course on Canvas: [Tutorial](#)



Register now!

EXERCISE SESSIONS

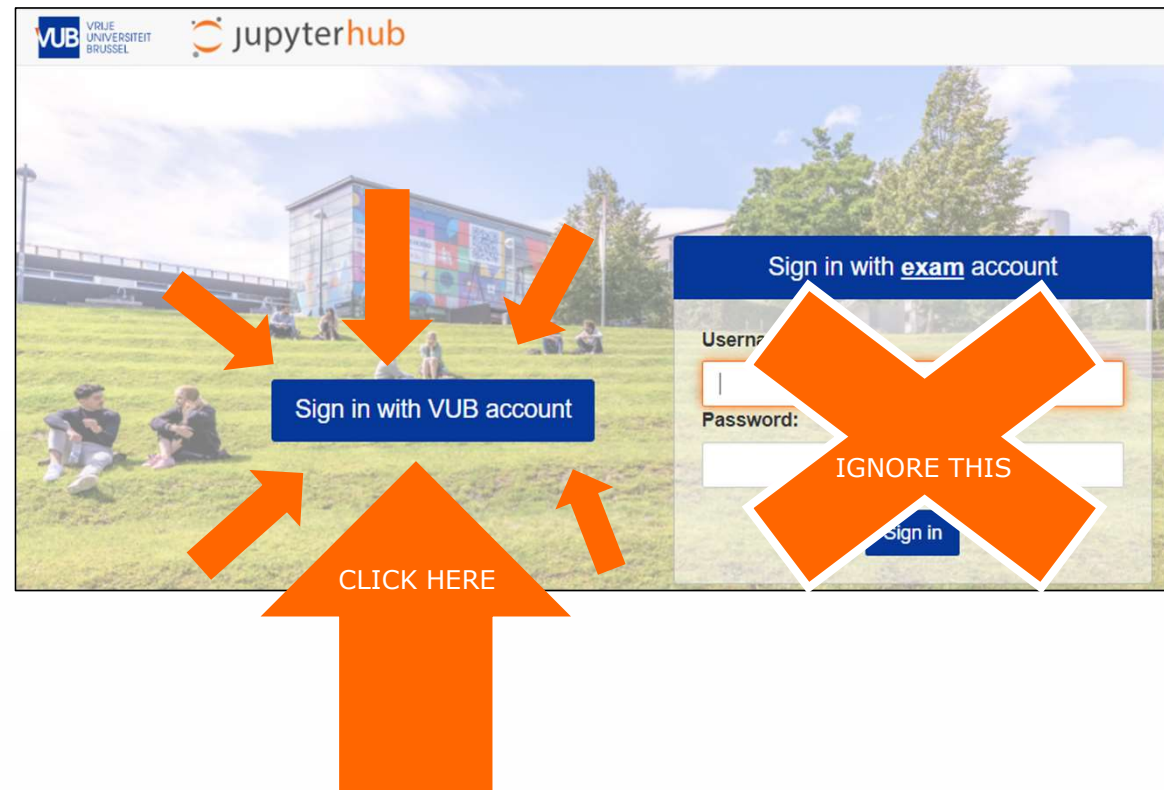
JOINING THE SESSIONS

Go to: <https://jupyter.etrovub.be>

Click: "Sign in with VUB account"

Log in with your VUB account. The exercises of mechanical vibrations should be visible to you 😊

NOTE : registration on jupyterhub takes 24h after registration on Canvas



EXERCISE SESSIONS

COLLECTING THE ASSIGNMENTS

Once logged in select: **Nbgrader**

From the dropdown menu select:
Assignment List

A new panel with '**Released assignments**' will appear.

Press the button with **Fetch**

The assignment now appears in your
"Downloaded assignments"

Click on the hyperlink to start your
exercise

The top screenshot shows the Nbgrader interface with the 'Nbgrader' menu selected in the top bar. An orange circle highlights the 'Nbgrader' menu, and an orange arrow points to the 'Assignment List' option in the dropdown menu. The bottom screenshot shows the 'Assignment List' panel with 'Released assignments' and 'Downloaded assignments' sections. An orange circle highlights the file path '/home/jovyan/2023.MV.Session1/session1_introduction.ipynb' in the 'Downloaded assignments' section, with arrows pointing to it from the text instructions.

EXERCISE SESSIONS

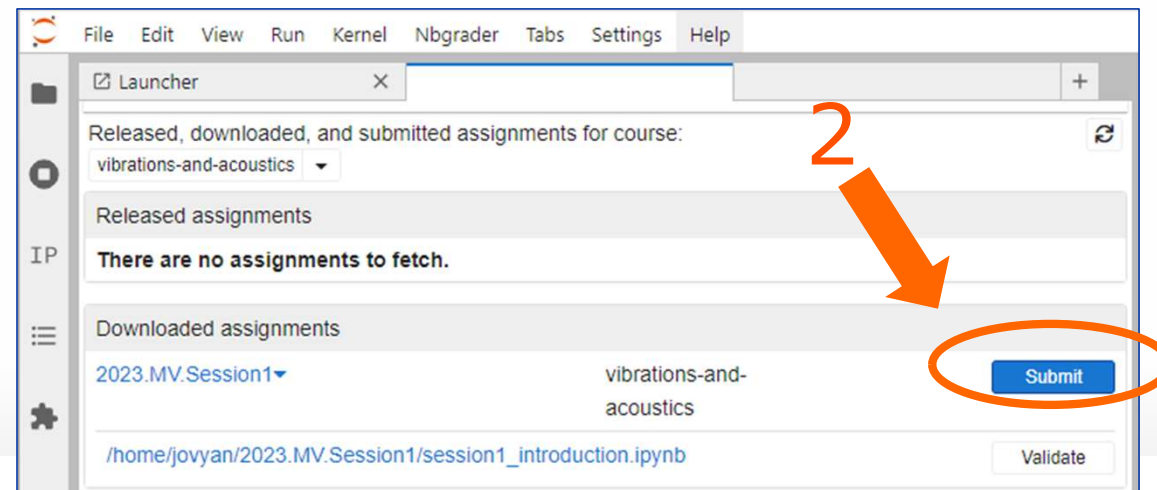
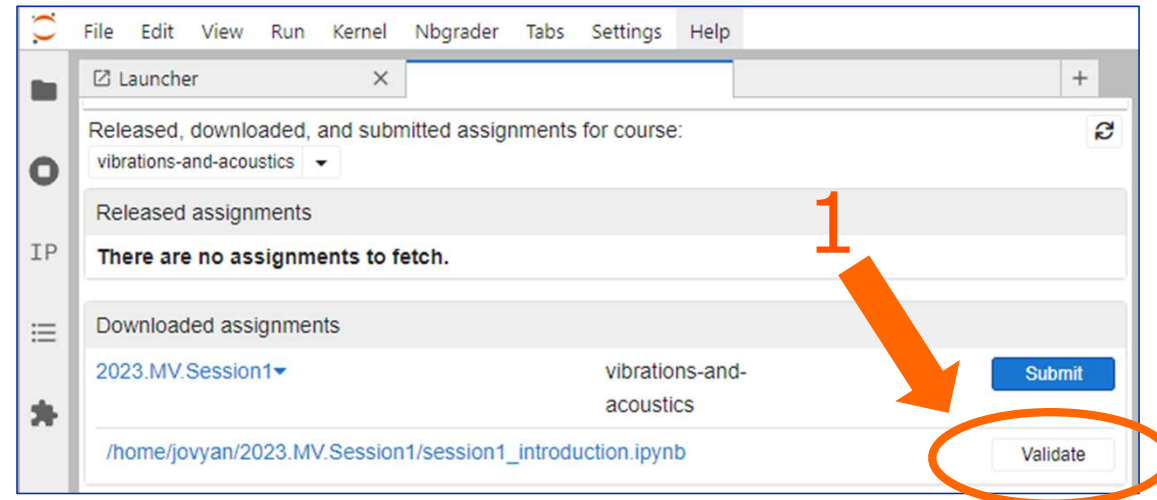
SUBMITTING THE ASSIGNMENTS

After completing the exercise , return to the 'Assignments' tab

First Press 'Validate'

- If this passes, (Success!), press **Submit**
- If Validate does not pass, then you made an error in your notebook. Return to the notebook and resolve the error. If you struggle to find the error reach out to one of us.

After you pressed submit your assignment is in the '**Submitted Assignments**'



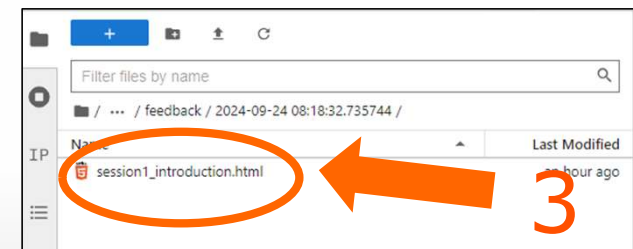
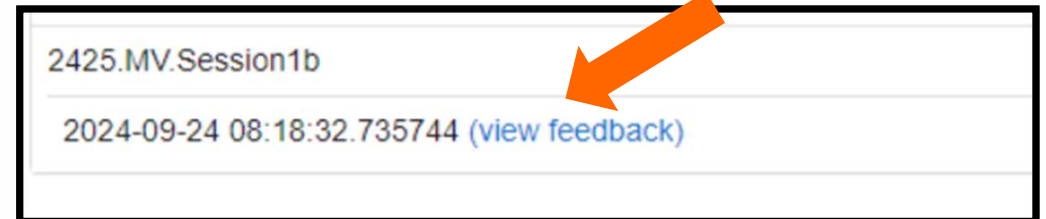
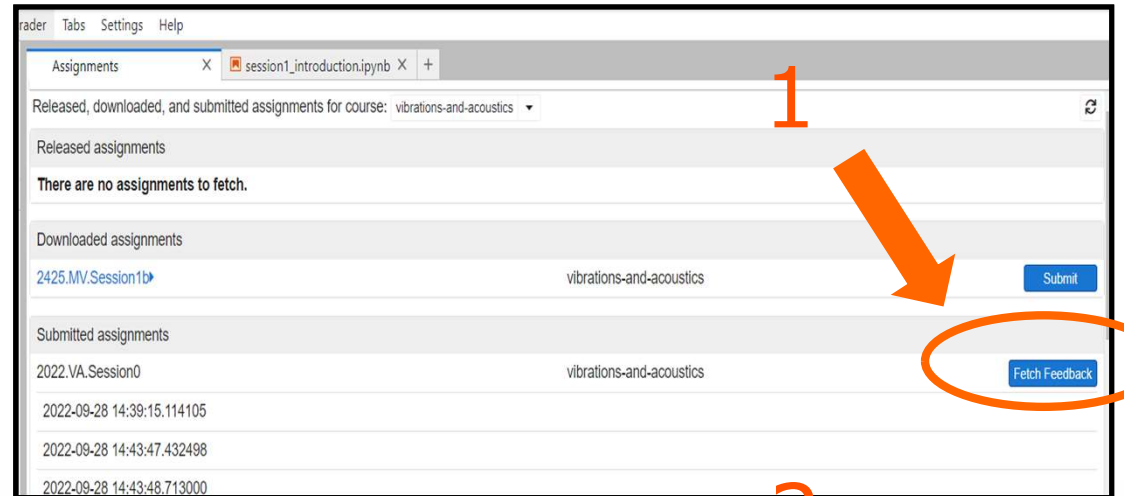
EXERCISE SESSIONS

FETCHING FEEDBACK

After submission, you might a message that we provided feedback.

To collect the feedback:

- Click the Nbgrader tab on the main interface and select Assignment List.
- (1) Click 'Fetch Feedback' next to the submitted assignment's name
- (2) If feedback is provided, a hyperlink will appear under the assignment.
- (3) Click on the HTML file that appeared in the navigation column
- Review the feedback to identify any errors or areas for improvement.
- For clarification, contact the teaching assistant.



QUESTIONS?

