



ULB



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MECHANICAL VIBRATIONS

ORGANISATION EXERCISE SESSIONS

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MECHANICAL VIBRATIONS

6 + 3 EXERCISE SESSIONS

- Six collective session @ ULB
 - **Bring your laptop!**
- Three at home

Presence is compulsory, the three at home sessions need to be submitted

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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 code cell with Python code for a damped harmonic oscillator. The code defines parameters like mass (m), stiffness (k), and damping coefficient (c), and uses NumPy to solve the differential equation. It then plots the displacement x(t) over time, showing a decaying sinusoidal wave. Below the code, there is a plot of displacement x(t) versus time (s). The plot shows a decaying sinusoidal wave starting at approximately 0.2 m and decaying towards zero over 100 seconds. The plot includes a legend with entries for 'x(t) [m]', 'x''(t) [m/s]', and 'x''(t) [m/s^2]'. Below the plot, there is a text box with instructions for a homework assignment. The assignment asks the user to calculate the natural frequency and the damped frequency of the system, and to plot the displacement x(t) versus time (s) for a given set of parameters. Below the text box, there is another code cell that defines the parameters for the system and plots the displacement x(t) versus time (s). The plot shows a decaying sinusoidal wave starting at approximately 0.2 m and decaying towards zero over 100 seconds. The plot includes a legend with entries for 'x(t) [m]', 'x''(t) [m/s]', and 'x''(t) [m/s^2]'. Below the plot, there are three sliders for the parameters: 'Damping (N/m*s)' set to 6.00, 'Stiffness (N/m)' set to 36, and 'Mass (kg)' set to 2.0. A 'Plot' button is located at the bottom right of the plot area.

EXERCISE SESSIONS

CANVAS REGISTRATION

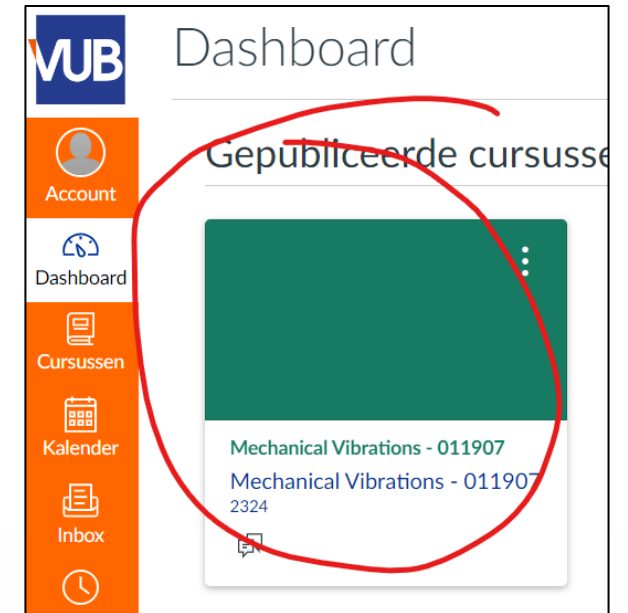
In order to join the exercise sessions you need to join the course on VUB's Canvas: <https://canvas.vub.be/>

- 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](#)

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



Register now!

EXERCISE SESSIONS

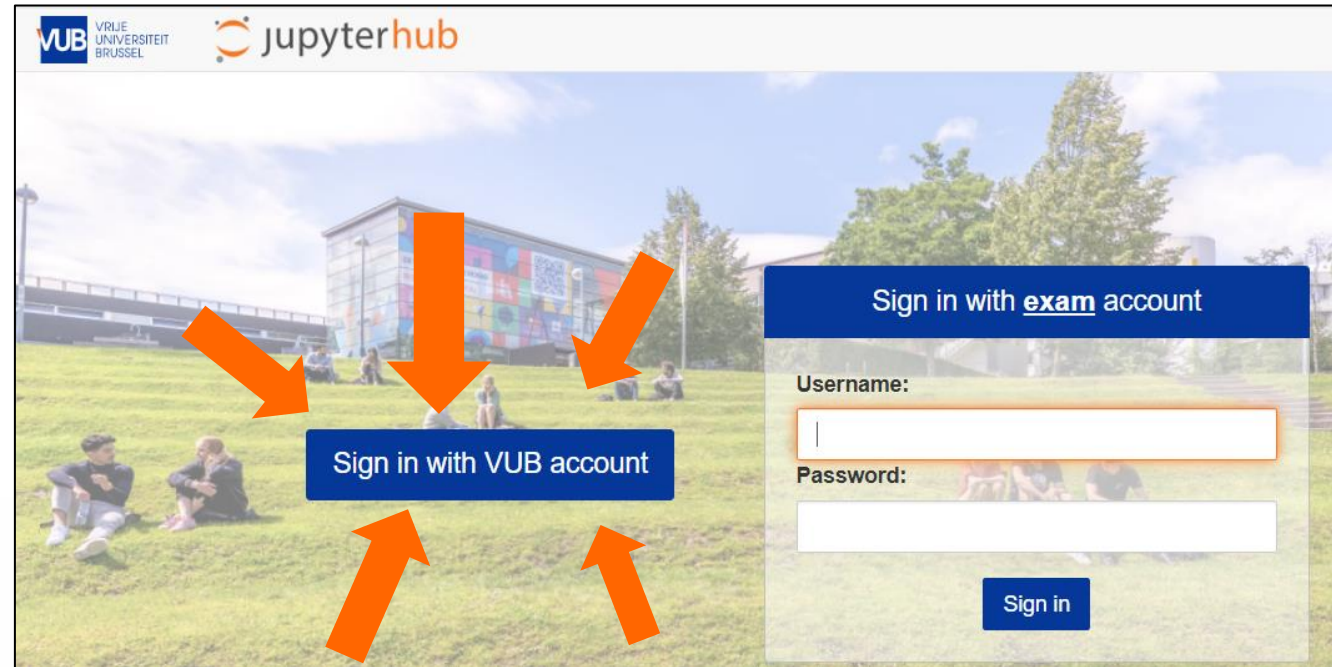
JOINING THE SESSIONS

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**

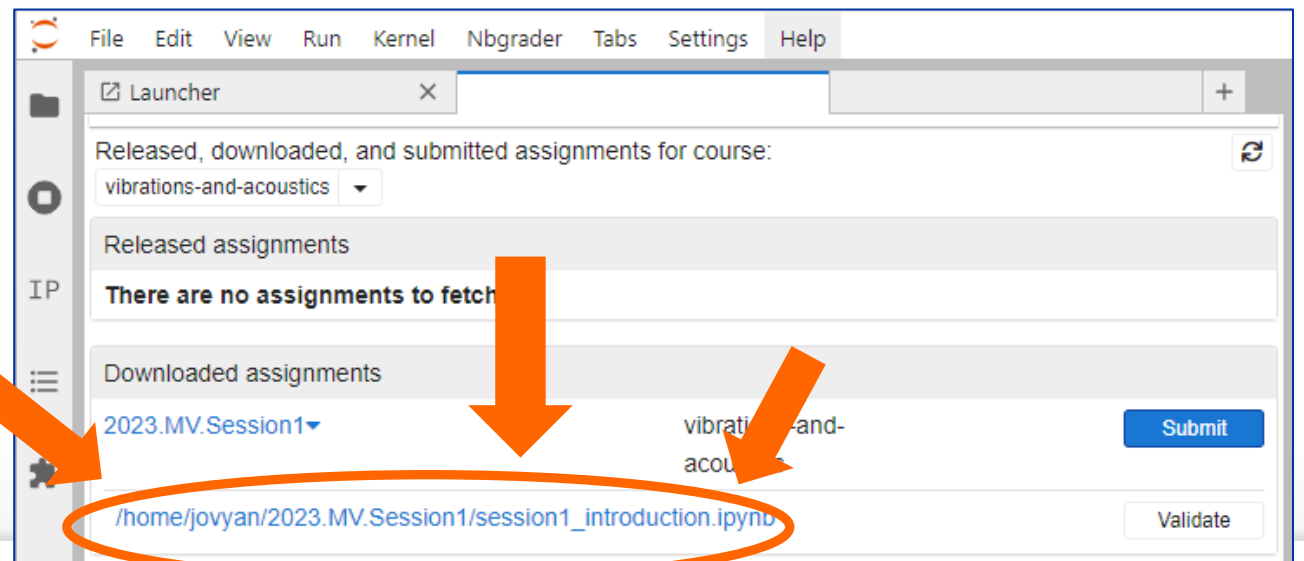
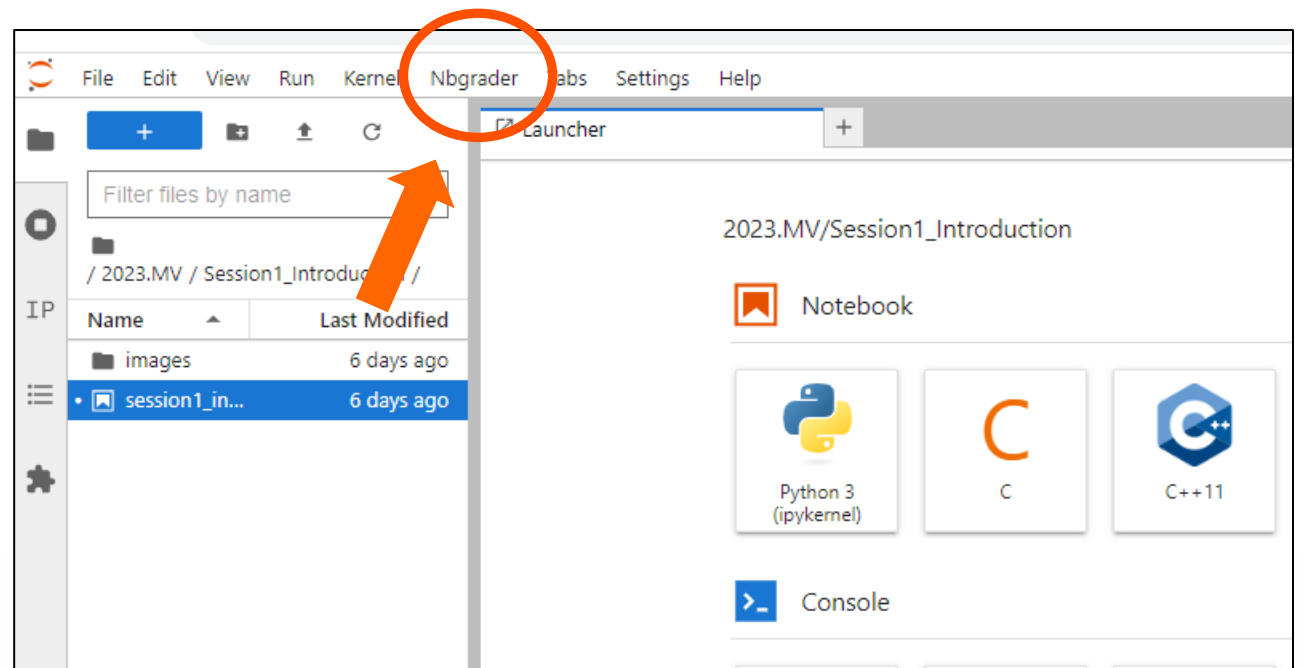
From the dropdown menu select:
Assignment List

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



EXERCISE SESSIONS

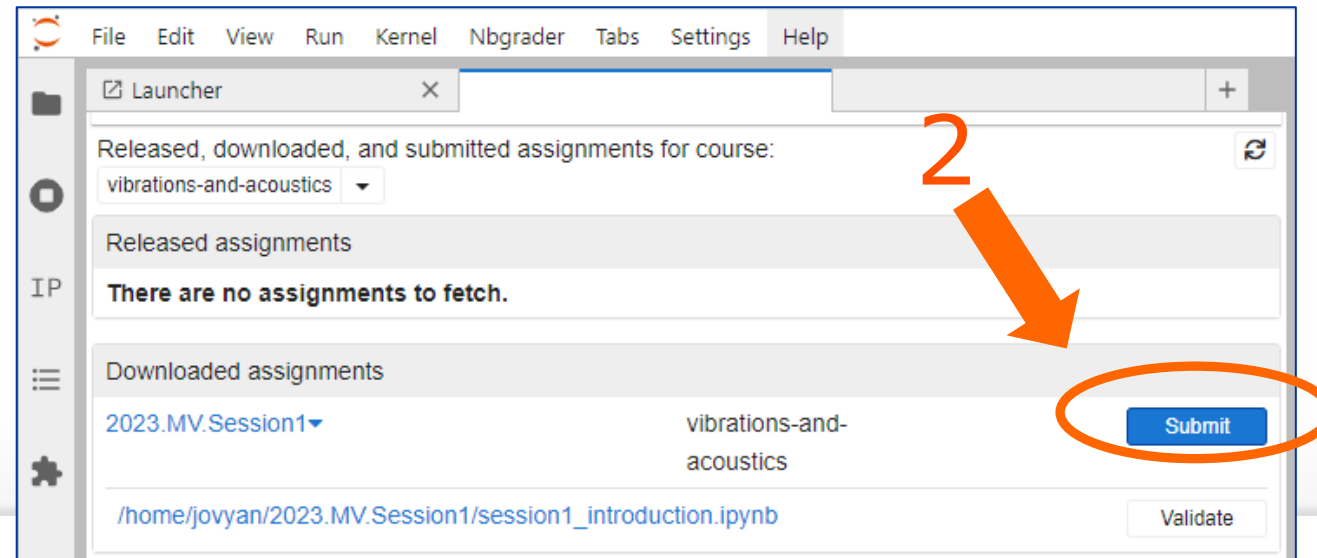
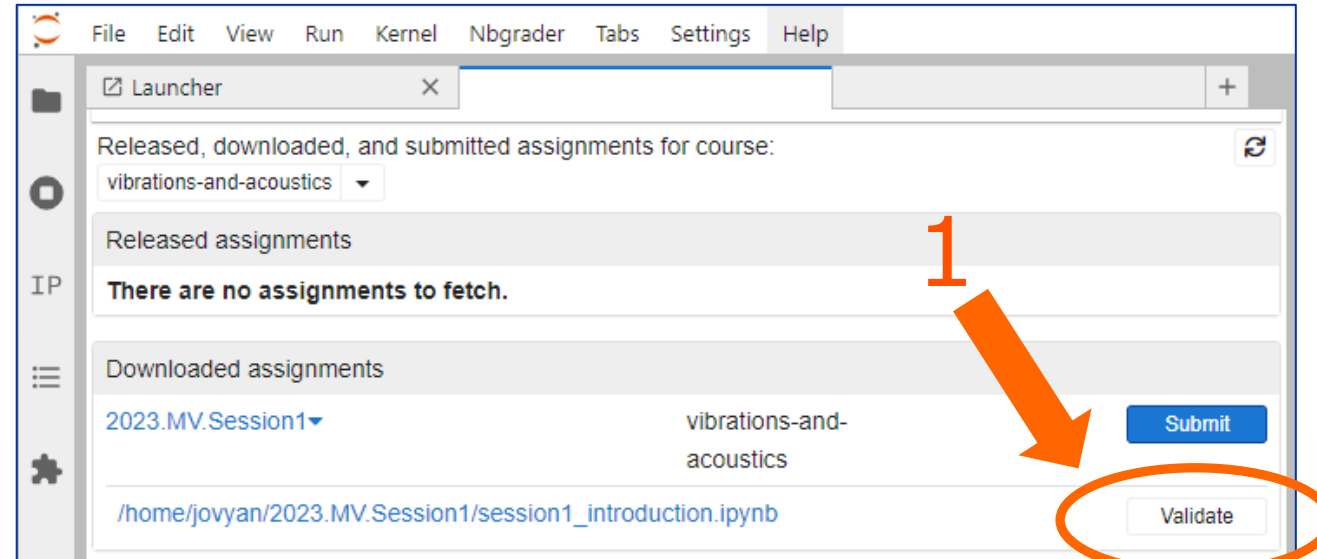
SUBMITTING THE ASSIGNMENTS

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**'



QUESTIONS?

