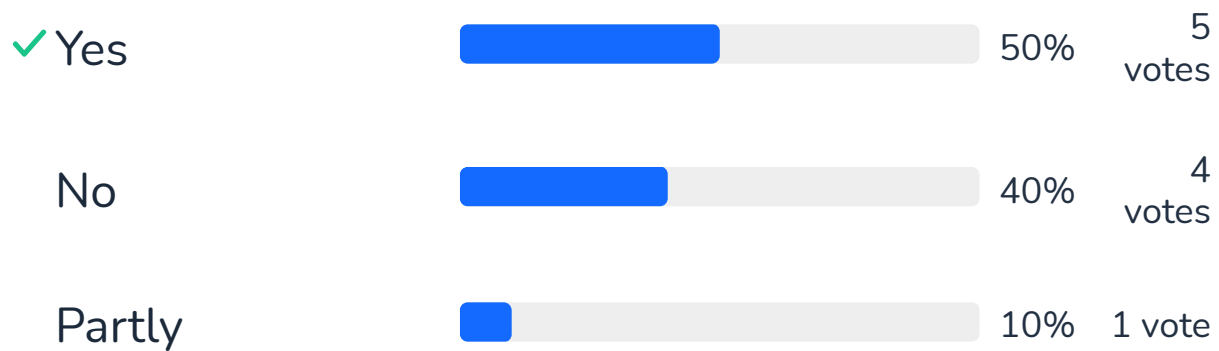


VIB 2021 : Vibration testing

Number of participants: 16

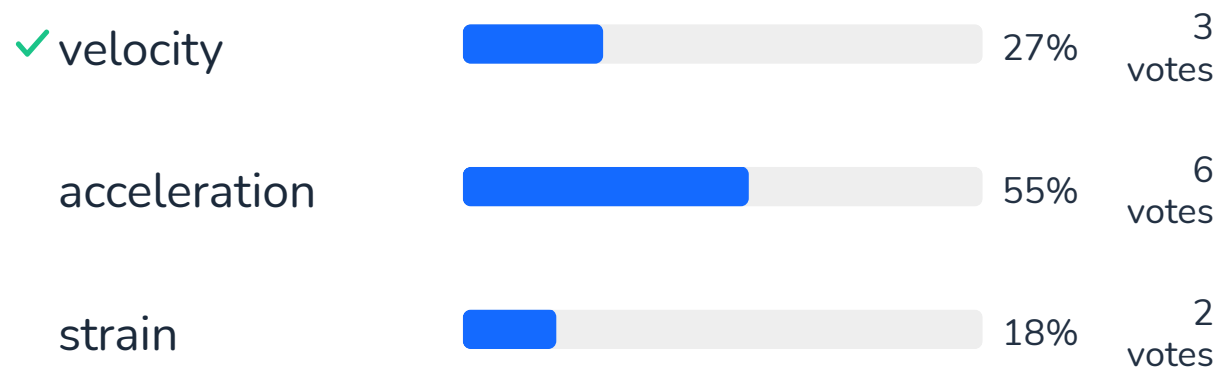
1

Did you watch the two videos
on vibration testing ?



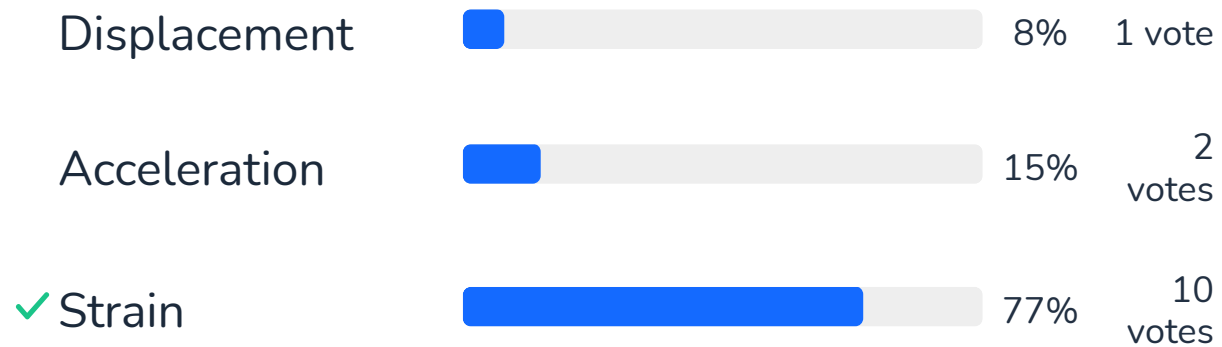
2

An electrodynamic sensor can
be used to measure



3

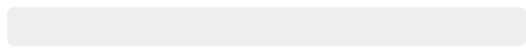
Piezoelectric transducers convert which of the following quantities into electric charge ?



4

In a piezoresistive sensor, strain results in a change of

The wavelength
of the reflected
light



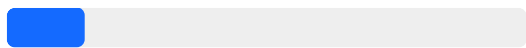
0%
0
votes

✓ Electrical
resistance of the
sensor



85%
11
votes

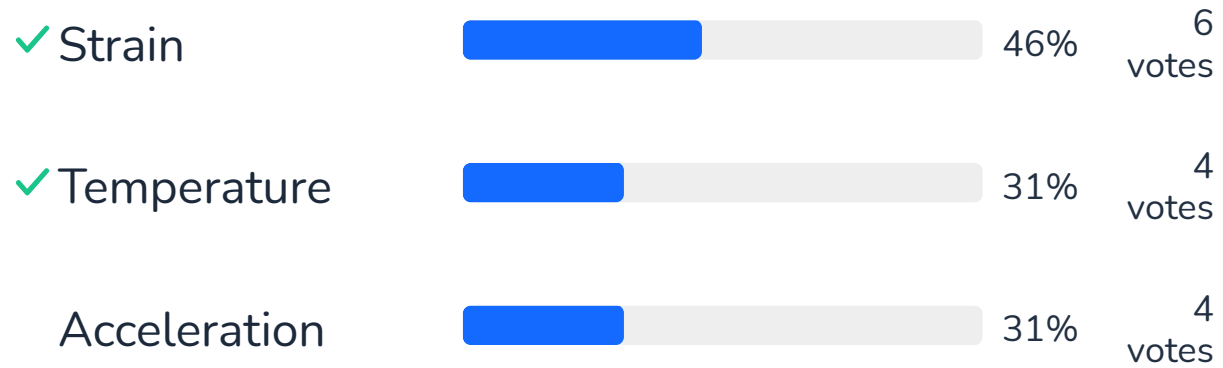
Electrical
capacitance of
the sensor



15%
2
votes

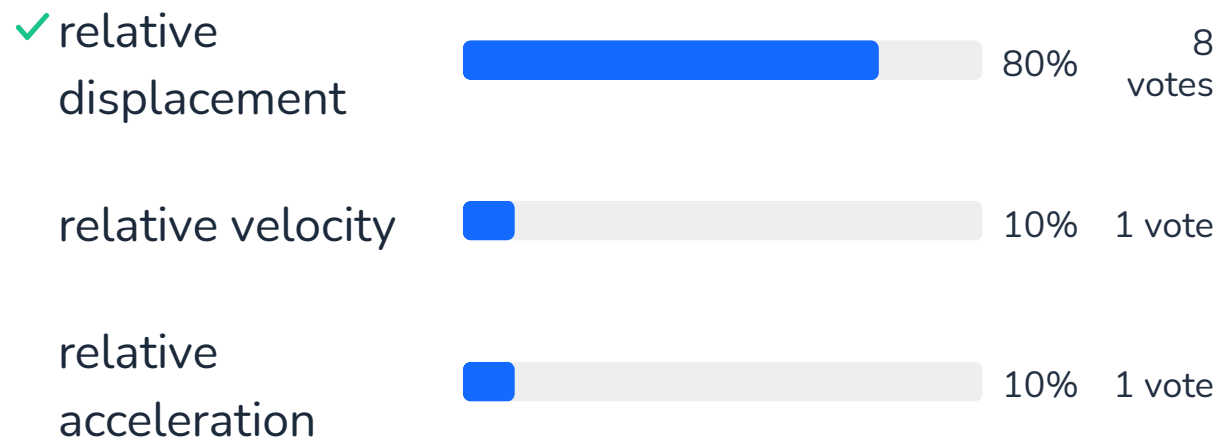
5

A FBGS (fiber optics) sensor can be used to measure



6

A capacitive sensor is aimed at measuring



7

What is the reason for using inertial sensors in practical applications ?

Impact hammer

Measuring response

We can measure absolute value without having a fixed point

Measuring acceleration

to measure vibrations

8

In which frequency band can
you use an accelerometer ?
And a geophone ?

Impact hammers

$w \gg \omega_n$

Accelerometer below natural freq, geophone above natural freq

1-1000 hz

9

What are the most common actuators used for vibration testing ?

Shakers, piezo electric actuators

Impact hammers

Shaker

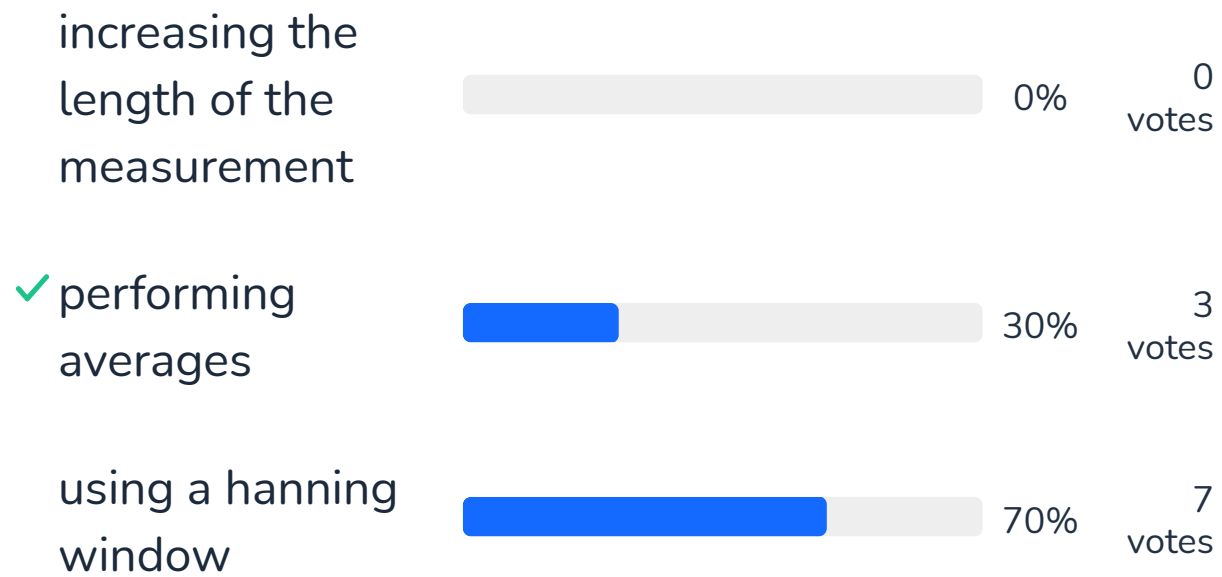
impact hammer, shaker

Impact hammer

Accelerometer

10

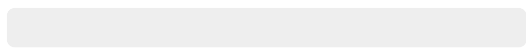
When exciting a structure with a periodic signal, the quality of the estimated FRF can be increased by



11

For periodic signals, it is important to synchronise the measurement time with the period of the signal

to decrease
memory storage



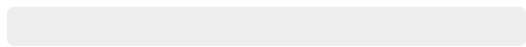
0%
0
votes

✓ to avoid leakage



100%
9
votes

to obtain a
better signal to
noise ratio

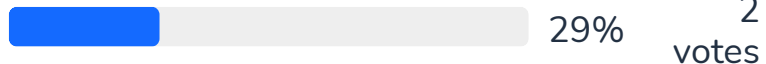


0%
0
votes

12

When using impulse excitation, and measuring acceleration on the structure, one should use

An exponential window for both the accelerometer and the force sensor



A hanning window for the accelerometer and a force window for the force sensor

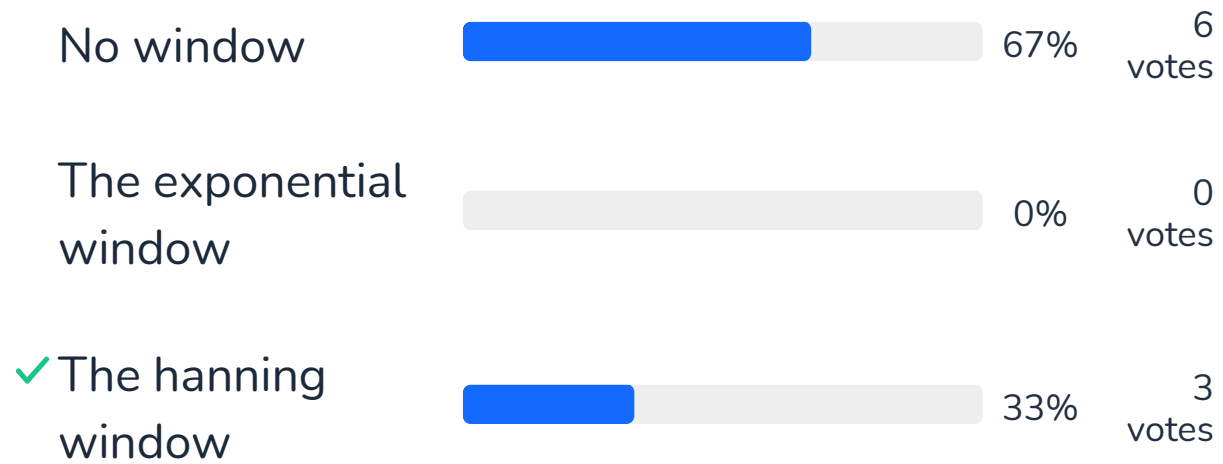


✓ An exponential window for the accelerometer and a force window for the force sensor



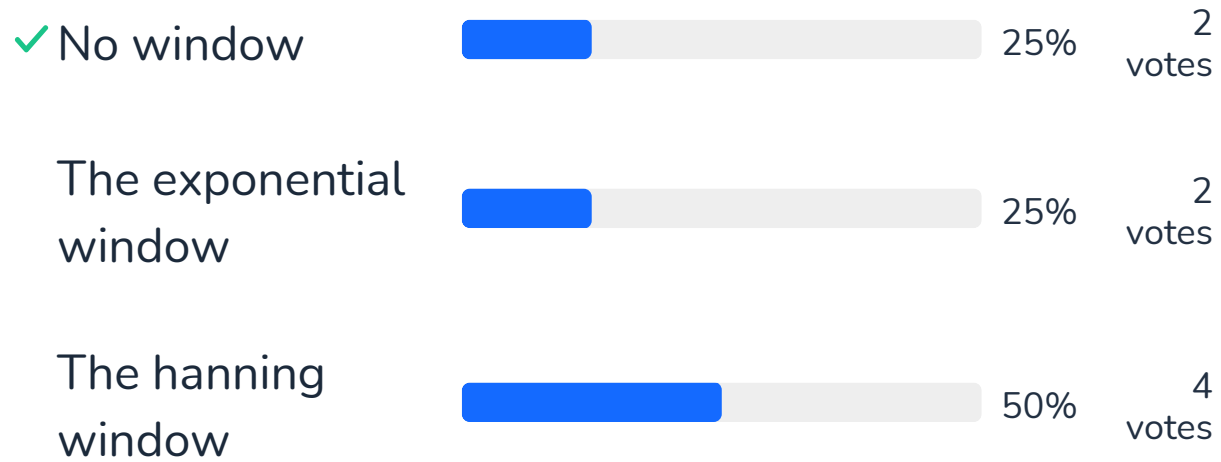
13

For random excitation, the
best window to measure FRF
is



14

For periodic excitation, the
best window to measure FRF
is



15

Q&A for the course

The mark of the exam is global or presenting well the case studies is already like 50% of the exam mark ?

What are your expectations from case studies? And do we have to show calculations also?

