Final exam questions

Subject group name: **Fluid Mechanics elective – Theoretical Acoustics**

Neptun code: ZVEGEVGNX28

Credit points: 3

Subject in this subject group:

- **Theoretical Acoustics** (BMEGEVGNX28)

Program: Mechanical Engineering Modelling, MSc (2N-MW0)

Specialization: Fluid Mechanics

Responsible person:

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You can check the current subject forms at the Educational Portal of the Faculty of Mechanical Engineering.

https://oktatas.gpk.bme.hu/

Always check the for updates at edu.gpk.bme.hu before preparing for the exam, especially if the subject group contains at least one subject from your final semester!

Valid from 01 September 2021

Dr. György Paál

professor

Theoretical Acoustics (BMEGEVGNX28)

1. Derivation of the homogeneous wave equation and clarification of the questions arising during derivation. (E. g. why can we neglect gravitation or why is the acoustic wave a potential flow?)
2. Monopole source. Physical meaning of a monopole source.
3. Dipole source.
4. Physical meaning of the dipole source.
5. Derivation of the Lighthill equation. Lighthill tensor. Explanation of the jet noise.
6. Dissipation of acoustic energy.
7. Free space Green function.
8. Far field approximation of any source.
9. Replacing the space derivative with a time derivative in the far field.
10. Compact Green function.
11. Curle's theory.
12. Vortex sound.