Ultrasonics 2023 final project:

Write a report (max 5 pages) about your wave mode (see the table below) and prepare a 10 min presentation on the subject. **A practice session for the presentation will also be held on 3.5.2023 14:00-16:00 (compulsory)**, where you will give your presentations and receive feedback for possible improvement. **The presentations will be presented 9.5. at 10:00-12:00** and the **written reports will be submitted at latest 10.5. 23:59**. Send your presentation slides along with the written report. The final project will constitute 40 % of the course grade. Grading of the final project will constitute 45 % from the written report, 35% from the oral presentation on 9.5. and 20 % from the practice session.

Presentations/reports must include:

- The underlying differential equation
- Assumptions (e.g. propagation medium, boundary conditions)
- Derivation of equation for pressure *p(r,t)* (in the presentations, it is sufficient to only show the main steps)
- Dispersion and attenuation: Is the wave mode dispersive and/or attenuating? How (equation + dispersion curve)?
- Schematic representation of the particle motion and video/animation/simulation of the wave mode
- 1-3 examples of applications, where the wave mode is used

Your written reports will be graded on clarity, thoroughness, difficulty, professionalism, and the fulfilment of the criteria above.

Your presentations will be graded on clarity, elegance, difficulty, general impression, and the fulfilment of the criteria above.

Modes and presenters

Korsimaa	Transverse membrane waves
Palmén	Stoneley wave
Pudas	Rayleigh + leaky Rayleigh waves
Rintala	Waves in beams (long, shear, torsional, flexural)
Salminen	Lamb waves
Schavikin	String waves (longitudinal, flexural)
Sirkka	Love waves
Wikstedt	Shear horizontal waves