

Assignment 2

Medical Ultrasonography: Using Sound Waves to Image

Write a report for the title given above. Your report should not be more than 3000 words. It should be typed using a word processor¹ and properly formatted as to be easy to read.

Your report should address the following subheadings:

- **Physics of Ultrasound imaging**

Discuss the physics involved in performing a medical ultrasound. This should be a general discussion of ultrasound physics; talk about acoustic impedance, frequency choice, effects of focusing.

- **Ultrasound Generation and Detection**

Talk about how ultrasound waves are generated. What types of transducers are used to produce ultrasound waves, and how do their physical limitations affect the key characteristics mentioned above. How do we detect ultrasound waves?

- **Image formation**

What causes contrast in an ultrasound image? Briefly discuss A and B modes of ultrasound imaging. Why is B mode more useful for medical ultrasonography?

- **Alternative uses of ultrasound**

Briefly discuss an alternative use of ultrasound imaging. How does it vary from medical ultrasonography?

Your completed work should be handed in via Avenue to Learn by **4pm Monday, March 19th**.

Late assignments will be accepted with a penalty of 10% per day, including weekends. Assignments will not be accepted after **4pm Monday, March 26th**.

1. There is no exception to this requirement; your report must be typed and properly formatted, hand written or poorly formatted reports will not be graded. If you do not have a word processing suite at your disposal, a free open-source equivalent to Microsoft Office, OpenOffice.org, can be downloaded free of charge and used for your word processing needs (<http://www.openoffice.org/>).