NHE2440 Individual Project Approval Form

**Student name:** Joe Davison

**Supervisor:** Ian Gibson

**Project title:** Creating a visual model of audio quality in rooms/venues

**Project description:**

Understanding room acoustics intuitively is quite hard for humans to do especially as you change environment variables. This project intends to investigate methods of visualising audio quality in a dynamic environment to grant a sound technician a greater understanding of the room and help them evaluate different possible setups.

My approach finding a solution has two main segments:

• Firstly, I will conduct research into which audio characteristics I should incorporate into an index by which to judge audio quality at any discrete point. This could be qualities like RT60, DRR or deviation of the frequency spectrum from the source point (constructive/destructive interference, standing waves etc.).

• Once I have created an algorithm which gives an index score for any point in a room, I will build a software tool to visualise this within a 3D computer model of the room. This will require further research into 3D audio simulation methods and other software challenges like using GPU acceleration and other optimisations as the larger and more complex the model gets the longer it will take to run (linear – O(n)), however, there might be a way to reduce calculations and interpolate.