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| Module Title: | Principles of Sound |
| Language of Instruction: | English |
| Credits: | 5 |
| NFQ Level: | 6 |
| Module Delivered In | 2 programme(s) |
| Teaching & Learning Strategies: | A mixture of active learning and prescribed learning will be implemented. Prescribed learning will take the form of lectures where the student will be introduced to core concepts in sound to allow the student to develop their unistructural and multistructural knowledge in a controlled learning environment. Active learning will take the form of laboratory exercises where students will examine aspects of sound such as beat frequency, loudness (phons) curves, equalisation along with related mechanical aspects of sound such as damping and loudspeaker design. The goal of these active learning sessions in the laboratory will be to facilitate the student to be able to relate the prescribed knowledge of the lectures with real-life objects & phenomena such as speakers, beat frequency and sound filtering/equalisation. Written assignments will be used to strengthen the understanding of both the prescriptive and active learning aspects of the module. |
| Module Aim: | The aim of this module is to allow the student the opportunity to understand difficult but fundamental ideas from Physics & acoustics with an emphasis on their practical ramifications. It is furthermore envisioned that the knowledge developed here can later be extended as it will compliment later modules, which they will undertake in their degree, that focus on microphones & other audio studio equipment. |
| Learning Outcomes | |
| <i>On successful completion of this module the learner should be able to:</i> | |
| LO1 | Describe the properties of sound such as pitch, loudness & timbre. |
| LO2 | Comprehend & measure sound & its properties. |
| LO3 | Relate the properties & measurements of sound with the principles of the technologies that capture, store, process and transmit sound. |
| LO4 | Demonstrate competency in the ability to measure and characterise sound in relation to how it is processed by the human ear and brain. |
| LO5 | Judge & appraise important parameters of sound reproduction such as equalisation and filtering along with speaker types and ratings. |
| LO6 | Evaluate digital & analogue sound reproduction methods. |
| LO7 | Develop problem-solving skills broad enough to be applied in an industry where the use of technology changes rapidly. |
| Pre-requisite learning | |
| Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i> | |
| No recommendations listed | |
| Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i> | |
| No incompatible modules listed | |
| Co-requisite Modules | |
| No Co-requisite modules listed | |
| Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i> | |
| No requirements listed | |

Module Content & Assessment

| Indicative Content |
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| Waves & units Watts, acoustic dB, power dB, SI units, review of wave equation, amplitude, frequency, phase, period, constructive interference, destructive interference, relation of pitch to frequency/wavelength, relation of loudness/intensity to amplitude. |
| Sound Frequency, loudness, timbre, acoustic resonance & damping, Doppler effect, Fletcher-Munson/Phons curves, harmonics/partials/overtones, beat frequency of separate sources. |
| Audio equipment Speaker design & speaker ratings, microphones, digital and analogue sound reproduction, sampling & aliasing, Fourier series, filtering & equalisation, characterisation of acoustic quality of musical instruments. |

| Assessment Breakdown | % |
|-----------------------|--------|
| Continuous Assessment | 40.00% |
| Project | 30.00% |
| Practical | 30.00% |

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

| Workload: Full Time | | |
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| <i>Workload Type</i> | <i>Frequency</i> | <i>Average Weekly Learner Workload</i> |
| Lecture | Every Week | 1.00 |
| Laboratory | Every Week | 2.00 |
| Independent Learning | Every Week | 5.00 |
| Total Hours | | 8.00 |

Module Delivered In

| Programme Code | Programme | Semester | Delivery |
|----------------|--|----------|-----------|
| CW_EETVM_B | Bachelor of Science (Honours) in TV and Media Production | 2 | Mandatory |
| CW_EETVM_D | Bachelor of Science in TV and Media Production | 2 | Mandatory |