Module Registrar: Dr Irina Trendafilova  
irina.trendafilova@strath.ac.uk

Taught To (Course): Mechanical Engineering (opt); Architectural Engineering (comp); Environmental Health (4th year and MSc - comp) cohorts

Other Lecturers Involved: none

Credit Weighting: 10 (ECTS 5)

Semester: 2

Academic Level: 4

Module Format and Delivery (HOURS i.e. 1 credit = 10hrs of study):

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Tutorial</th>
<th>Laboratory</th>
<th>Groupwork</th>
<th>External</th>
<th>Online</th>
<th>Project</th>
<th>Assignments</th>
<th>Private Study</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>12</td>
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Educational Aim

It is recognised that the control of the external and internal acoustic environment is of increasing importance. This module aims to give students a grounding in acoustic analysis and measurement.

Learning Outcomes

On completion of the module the student is expected to be able to

LO1  Understand the physical laws of sound propagation (objective assessment) and the characteristics of the hearing mechanism (subjective assessment).

LO2  Know the law relating to noise pollution, the requirements for the conservation of hearing, and noise control measures that can be introduced.

LO3  Be able to undertake room acoustic and room-to-room transmission calculations.

Syllabus

The module will teach the following:

- Physical aspects of sound propagation: pressure waves, velocity of sound, wavelength, frequency; magnitude of acoustic signals, sound pressure level, power and intensity; one dimensional plane and spherical waves, near and far field, impedance; frequency analysis; weighted sound pressure levels.
- Hearing mechanism
- Methods used to assess hearing response: BS4142, Zwicker and Stevens Methods, Noise Rating
- Transport noise: road, rail and aircraft
- Regulations: types of deafness; Noise at Work
- Room acoustics: absorption, reverberation time
- Structural sound transmission: sound reduction index
- Noise measurement: demonstrations of Sound Pressure Meter

Assessment of Learning Outcomes

Criteria

For each of the Module Learning Outcomes the following criteria will be used to make judgements on student learning:

LO1 - LO3 The assessment is made in examination and it will test the student as follows:

C1 Understanding of the basic concepts of topics covered in the syllabus.

C2 Ability of students to carry out acoustic calculations and assess the results in terms of the implications for hearing conservation, legal compliance, noise control measures etc.
The standards set for each criterion per Module Learning Outcome to achieve a pass grade are indicated on the assessment sheet for all assessment.

**12 Principles of Assessment and Feedback**  
(On Learning & Teaching web pages: [www.strath.ac.uk/learnteach/informationforstaff/staff/assessfeedback/12principles/](http://www.strath.ac.uk/learnteach/informationforstaff/staff/assessfeedback/12principles/))

Informal feedback will be provided at regular tutorial sessions primarily through verbal discussion with individuals or groups on tutorial exercises attempted in advance by students (note: to receive this feedback students should participate in these tutorials but attendance is not mandatory). Feedback will be provided by the return of class test to students after assessment.

**Assessment Method(s) Including Percentage Breakdown and Duration of Exams**

<table>
<thead>
<tr>
<th>L/Outcomes</th>
<th>Examinations</th>
<th>Courseworks</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO1, LO2, LO3</td>
<td>Number</td>
<td>Month(s)</td>
<td>Duration</td>
</tr>
<tr>
<td>1</td>
<td>May</td>
<td>2hrs</td>
<td>80%</td>
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</table>

Indicate which learning outcomes (L01, L02 etc) are to be assessed by exam/coursework/project as required.

**Coursework / Submissions deadlines:** n/a

**Resit Assessment Procedures:**

2 hour examination during the August resit diet.

**PLEASE NOTE:**

Students need to gain a summative mark of 40% to pass the module. Students who fail the module at the first attempt will be re-examined during the August diet. This re-examination will consist entirely of exam.

**Recommended Reading**

****Purchase essential  ***Purchase recommended  **Highly recommended reading  
*Simply for reference (do NOT purchase)*

Elementary material covered in:  

**Additional Student Feedback**

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<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Room No</th>
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<tbody>
<tr>
<td>Thursdays</td>
<td>1pm-2pm</td>
<td>TBC</td>
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Session: 2014/15

**Approved:**

**Course Director Signature:**

**Date of Last Modifications:** 14 November 2014
**MODULE TIMETABLE**

<table>
<thead>
<tr>
<th>Module Code:</th>
<th>16468</th>
<th>Module Title:</th>
<th>Acoustics</th>
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**Brief Description of Assessment:**

- 2hr exam during May diet (80%)
- 1 quiz week 5 (20%)

**Assessment Timing:**

Indicate on the table below the start/submission dates for each assignment/project and the timing of each exam/assessment(s).

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<thead>
<tr>
<th>Semester One</th>
<th>WK1</th>
<th>WK2</th>
<th>WK3</th>
<th>WK4</th>
<th>WK5</th>
<th>WK6</th>
<th>WK7</th>
<th>WK8</th>
<th>WK9</th>
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<th>Semester Two</th>
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<th>WK2</th>
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<th>WK10</th>
<th>WK11</th>
<th>WK12</th>
<th>Exam Period</th>
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<td>Quiz</td>
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<td>May 2hr</td>
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