

## Summer Undergraduate Research Programme 2021

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| Project Number & Title: | <p><b>Project 5</b></p> <p>Evaluation of building ventilation systems and their effectiveness in reducing contaminant concentrations within specific areas</p>  |
| Project Details         | <p>Surveys of building ventilation/air-conditioning systems are completed to assess the internal environments of specific areas within buildings in terms of their effectiveness in reducing contaminant concentrations. These would include measuring gaseous (e.g. CO<sub>2</sub>) and VOC (Volatile Organic Compound) emissions, unwanted odours and particulate matter (e.g. dust particulates, organic matter including microbes). Such pollutants can have an adverse impact on occupants' health and well-being and may cause short term effects such as drowsiness/loss of concentration, lung and eye irritation and longer term impacts/damage.</p> <p>Work is required to evaluate the current configuration/operation of HVAC (heating, ventilation and air-conditioning systems) for a given building/site and to suggest methods of improving the performance of such systems. In addition, IAQ (indoor air quality) needs to be measured within spaces ventilated by the above to determine the performance of services plant.</p> <p><b>Project Objectives</b></p> <p>Development of a robust measurement and analysis methodology for evaluating IAQ in buildings.<br/>         Generation of data to facilitate research on evaluating the internal environments of buildings.<br/>         Education/training of students; production of teaching resources</p> <p><b>Strategic Relevance of project to centre/group's research agenda</b> Education/training of students in effectively writing and using analysis software</p> |

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|                                | <p>Evaluation of internal environments including those existing in lower energy buildings</p> <p><b>Measurable Outcomes / deliverables</b><br/>System evaluation methodology<br/>Experimental “toolkit” including data collection<br/>Data for evaluating specific room conditions</p>   |
| Profile of Candidate           | <p>Good 3<sup>rd</sup> or 4<sup>th</sup> year electronic/mechanical engineering student<br/>Highly motivated with an interest in building energy systems</p>   |
| Project Supervisors            | <p>Eoin Clancy BE MSc PhD CEng (Project supervisor),<br/>School of Engineering</p> <p>All enquiries to <a href="mailto:eoin.clancy@dkit.ie">eoin.clancy@dkit.ie</a></p>  |
| Duration                       | 6 weeks  |
| Number of Positions Available  | 1  |
| Amount Awarded (per candidate) | Weekly stipend of €150 (tax free)  |
| How to Apply                   | <p>Each applicant should submit the following documents by email to <a href="mailto:mary.matthews@dkit.ie">mary.matthews@dkit.ie</a>:</p> <ul style="list-style-type: none"> <li>• CV including academic transcripts</li> <li>• A 300 word statement as to why you are a suitable candidate for this project.</li> </ul> <p>Please state clearly in the subject line of your covering email the abstract title and project reference number.</p> <p><i>An applicant may apply for more than one programme, but each application must be made separately.</i></p> |