

low carbon building design and modelling low carbon building design and modelling low carbon building design and modelling low carbon building design and modelling low carbon building design and modelling low carbon building design and modelling



msc

# low carbon building design and modelling

- developed with the modern building services engineer in mind
- learn about innovative approaches to low carbon building design
- become skilled in the use of advanced building simulation models
- flexible study with full-time or part-time options

[www.lboro.ac.uk/msclcbdm](http://www.lboro.ac.uk/msclcbdm)

 Loughborough University

# Low Carbon Building Design and Modelling MSc

## Programme Description

There is a need, both in the UK and internationally, for graduates with new skills in the areas of low carbon building design and building simulation modelling. The aim of this course is to produce graduates with these skills which will enable them to apply themselves beyond the business-as-usual building services design and into the field of innovative, low carbon building design. This is a growing area of focus for all building services engineering practices. The course is divided broadly into four main areas as follows.

- Fundamentals of energy use in buildings and renewable energy technology.
- Low carbon design and operation.
- Advanced computer simulation.
- Research project.

The individual research project provides students with an exciting opportunity to develop a substantive piece of work in the area of low carbon building design with the scope to put into practice the use of the advanced simulation methods learnt. For part-time students this project will normally be undertaken at their place of employment and be based on a topic of direct benefit and relevance to the company.

It is expected that students graduating from this course will go on to work in the building design consultancy sector with the ability to use computer simulation from day one and soon after to lead low carbon building design teams.

## Entry Qualification

A good first degree in engineering, science, mathematics, or discipline related to building services engineering; other qualifications supplemented with relevant industrial experience will also be considered. International students require an approved English language qualification (IELTS 6.5 or equivalent).

## Programme Structure

The programme can be taken as a one-year full-time programme or part-time over two to five years. Study is undertaken in one-week blocks with individual project work and private study between these periods. As the programme is run on a modular basis, credits are awarded for passing each module. 180 credits in total are required for the MSc, comprising eight taught modules of 15 credits each and an individual research project worth 60 credits. For full-time students, the modules will normally be taken as 60 credits per semester together with the research project starting in semester 1 and continuing throughout semester 2 and the summer period. Below is a list of the modules provided on the programme. All modules are compulsory.

### Programme Content

#### Fundamentals

Building Energy Systems (15 credits)  
Renewable Energy and Low Carbon Technologies (15 credits)

#### Low Carbon Design and Operation

Concept Design (15 credits)  
Low Carbon Building Design (15 credits)  
Control and Commissioning (15 credits)

#### Modelling

Advanced Thermal Modelling (15 credits)  
Advanced Airflow Modelling (15 credits)  
Advanced Lighting Modelling (15 credits)

#### Research Project

Postgraduate Research Project (60 credits)

**Bursaries:** these may be available to international candidates who apply early.

**Department of Civil and Building Engineering, Loughborough University, Loughborough, Leicestershire LE11 3TU, UK**

**Programme Director and Admissions Tutor: Dr Malcolm Cook E: [Malcolm.Cook@lboro.ac.uk](mailto:Malcolm.Cook@lboro.ac.uk)**

**Programme Administrator: Mrs Pamela Allen E: [P.J.Allen@lboro.ac.uk](mailto:P.J.Allen@lboro.ac.uk) T: +44 (0) 1509 228529**