# Job Description – EPSRC DTP Internship: Exploring gaseous emissions in applied smouldering systems

*“EPSRC’s Vacation Internships scheme gives undergraduate students a taster of what it is like to do research. The students are given practical, first-hand experience of working on and carrying out research in a UK university.”*

Source: [Internships and placements – UKRI](https://www.ukri.org/councils/epsrc/career-and-skills-development/studentships/flexibility-for-funders/internships-and-placements/)

To be eligible for an EPSRC Vacation Internship you **must**:

* be an undergraduate or Masters student in a STEM subject area.
* not have completed your degree studies before the planned end of the internship. An internship should generally take place in the summer vacation **before** your final year of study.
* have a right to work in the UK and carry out the placement whilst resident in the UK. We are **not** able to sponsor visas for the internship.

**About the Role**

This project will use experiments, analytical techniques, and existing datasets to better understand the gaseous emissions from applied smouldering. A combination of approaches may be needed to better understand the gaseous emissions in smouldering systems. Laboratory smouldering experiments will be used to generate a novel dataset of emissions gathered using in-house FTIR and GC-MS instruments – which will characterise various key constituents (e.g., CO2, CO, NOx, SOx). These experiments will follow published methods and track temperatures, pressures, and mass loss rates. Post-treatment smouldering samples generated may also be analysed via various surface analytical techniques (e.g., XRD, XPS, FTIR, and SEM-EDS) – which will shed light on potential value in the post-treatment material. All experimental analyses can be paired with a large dataset of existing smouldering experiments. This dataset has valuable information to better understand smouldering, e.g., emissions and temperature measurements.

Altogether, this role will be laboratory-based and require strong adherence to health and safety practices, diligent experimentation, and excellent attention to detail.

The role will develop skills and experience in:

* Developing core competencies needed for CIWEM and CEng certifications
* Environmental engineering laboratory skills that are highly transferrable
* Team building and communication skills among fellow lab-users and collaborators

**About the Unit**

**Environmental engineering** is all about designing a responsible interface between the natural environment and human activities.  This challenging task encompasses a broad range of topics and integrates many engineering disciplines – e.g., civil, mechanical, chemical – with environment and natural sciences. Environmental engineering therefore requires collaboration among many disciplines, which is a major strength at the Open University.

**Key Responsibilities**

* Conduct laboratory smouldering experiments to generate data on emissions measurements in applied smouldering systems
* Analyse produced data to identify trends
* Report writing on key findings
* Presenting experimental findings to internal team members and external collaborators

**Skills and experience**

Essential:

* Access to a computer/laptop, the Internet and Microsoft Office applications
* Commitment to excellent laboratory health and safety practices

Desirable:

* Interest in environmental engineering
* The ideal candidate will have a background in engineering and environmental sciences and exhibit a high degree of independence and initiative
* Previous laboratory experience, particularly with thermochemical techniques, will be considered a strong asset
* This project can be tailored to the specific background and interests of individual applicants

If you would like further details about the role before making an application, then please email [stem-research-student-support@open.ac.uk](mailto:stem-research-student-support@open.ac.uk) quoting the reference number and job title.