National Centre for Combustion and
Aerothermal Technology (NCCAT)
Department of Aeronautical and Automotive Engineering

Loughborough University

Senior Test Engineer

Job Ref: REQ241119

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Job Description

Job Grade: Management and Specialist Grade 6

Job Purpose
To support the experimental activities within the National Centre for Combustion and Aerothermal Technology (NCCAT) based at Loughborough University.

Job Description

The National Centre is responsible for the development of new technology that is primarily targeted at delivering future, low emission, gas turbine combustion systems for aerospace applications. As part of the development process various experimental activities are undertaken that require the development and operation of specialist, bespoke test facilities. Hence the Centre constructs, maintains and operates experimental facilities that incorporate various levels of technical complexity. These facilities can range from relatively simple facilities (as expected in a laboratory environment) through to facilities which operate at elevated pressures/high temperatures (as typically occurs within a gas turbine engine) or simulate the high-altitude sub-atmospheric conditions in which an aerospace combustion system must be capable of relighting. Data is acquired from these test facilities which enable the performance of various types of aerothermal technologies to be evaluated and developed.

The role entails the development and manufacture of hardware together with the operation of various test facilities and associated instrumentation systems primarily to support the testing of gas turbine combustion systems. This will entail being responsible for specific projects, planning of tests, budgeting etc. The activities will also require working together with the Centre's academic, research (including PhD students), and technical staff, and supporting industrial users of the Centre on research and commercial activities. The postholder will have a major influence in helping to maintain the research groups reputation for the scheduling and delivery of high quality, high impact, and complex research.

Job Duties

- To become skilled in the preparation and operation of various test facilities within NCCAT.
- Be responsible for the operation of test facilities that relate to different research projects and commercial contracts, including analysing/diagnosing and solving technical problems.
- Be proactive in evaluating test rigs, equipment and procedures within the facility, with a view to identifying need for maintenance or improvements to established equipment and/or procedures.
- To support the Head of Technical Operations in the detailed planning and preparation of NCCAT test cell occupancy as well as the routine maintenance of NCCAT plant and infrastructure.

- To coordinate closely with the Technical Manager to ensure test rig hardware and the necessary technical support are made available in a timely manner.

- To undertake the design, manufacture, and build-up of test rig related hardware along with any required infrastructure that is necessary to support its operation (e.g., fuel and cooling systems). To include preparation of costs (e.g., material and tooling estimates) from preliminary specifications.

- In addition to traditional methods, utilise Computer Aided Design and Manufacturing techniques for the purpose of equipment design and test rig manufacture.

- Be responsible for the setting up of data acquisition and instrumentation systems and the capturing of data from the Centre's facilities.

- Contribute to the development of new ideas for future, low emission gas turbine engines which offer improved performance.

- To provide guidance and support to research staff/PhD students in the design, manufacture, and operation of bespoke/specialist experimental test facilities.

- To collaborate and work with NCCAT staff to successfully deliver various experimental programmes.

- To work with visiting commercial customers/engineers using the Centre's experimental facilities to provide technical approaches/solutions that ensure commercial programmes can be successfully delivered.

- To ensure that quality control and working procedures are implemented and reviewed as required to meet the necessary standards.

- To review and present experimental results with colleagues.

- To assist in the training of staff/PhD students in the use, repair and maintenance of facilities where appropriate, including advising on the health and safety implications during the development of new and existing test rigs

- Carry out statutory risk assessments, manual handling and COSHH assessments within specified work areas. To aid research staff/PhD students in the formulation of risk evaluation and control as required; ensuring that others comply with current health and safety regulations.

- To engage in training programmes in the University (e.g., through Staff Development) and elsewhere as required.

- To undertake other duties as may reasonably be requested and that are commensurate with the nature and grade of the post.

Points to Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Respecting Diversity and, where appropriate, Recruitment and Selection.

Organisational Responsibility

Reports to Ashley Barker, Head of Technical Operations, National Centre for Combustion and Aerothermal Technology (NCCAT)

Person Specification

Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and provide evidence as to how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

1 – Application
2 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Recent relevant experience in an academic or industrial environment	1, 2
	Experience of running test facilities associated with the evaluation of combustion system hardware	1, 2
	Data Acquisition and Control software for controlling fuel flows, measurement of temperatures and mass flow as typically associated with the testing of combustion systems.	1, 2
	Construction and assembly of test rigs	1, 2
	Test rig component and associated tooling design	1, 2
	Experience in dealing with external suppliers of equipment and consumables for use in the production of test facilities or parts for test facilities	
	Writing of Risk Assessments	1, 2
	Project planning, including experience of budget management	1, 2
Skills and abilities	Knowledge of gas turbine engines and combustion systems	1, 2
	Ability to work independently and to integrate into part of a multidisciplinary team	1, 2
	Flexible, willing and reliable with good time management and organisational skills.	1, 2
	Excellent verbal and written communication skills, with a “strong” customer focus	1, 2
	Ability to work under pressure and to tight deadlines	1, 2
	Ability to understand manufacturing drawings and manufacturing processes	1, 2
	Ability to observe confidentiality at all times	
	Ability to explain design ideas and plan clearly	
	Ability to process and present data, write reports and presentations, preferably using Microsoft Excel, PowerPoint and Word.	1, 2
	Competent in the use of Windows operating systems combined with instrumentation systems	2
	A comprehensive knowledge of relevant Health and Safety regulations	1, 2
	Conversant in the use of drafting design packages e.g. AutoCAD, Nx or similar	1, 2
Training	A willingness to undertake further training as appropriate and to adopt new procedures as and when required	1, 2

	Able to demonstrate commitment to developing career through personal and professional development.	1
Qualifications	A degree in a relevant engineering discipline or equivalent industrial experience.	1
Other	Evidence of a good working knowledge of equal opportunities and understanding of diversity in the workplace	1

Desirable Criteria

Area	**Criteria**	**Stage**
Experience	Undertaken a Craft Apprenticeship or comparable experience	1, 2
	Experience of instrumentation used in the measurement of aero-thermal processes	1, 2
Skills and abilities	National Instruments LabView	1, 2
	Experience or knowledge of the storage, handling and use of fuels	1, 2
Qualifications	Study or qualification in the use of computer packages used in the engineering environment	1

Conditions of Service

The position is full-time and open-ended. Salary will be on Management and Specialist Grade 6, £34,866 - £45,163 (pay award pending) at a starting salary to be confirmed on offer of appointment.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff/Operational and Administrative staff, details of which can be found here.

The University is committed to enabling staff to maintain a healthy work-home balance and has a number of family-friendly policies which are available at http://www.lboro.ac.uk/services/hr/a-z/family-leave-policy-and-procedure---page.html.

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html

In addition, the University is supportive, wherever possible, of flexible working arrangements. We also strive to create a culture that supports equality and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see http://www.lboro.ac.uk/services/hr/athena-swan/