



Job title	Research Associate / Fellow in Decarbonised Internal Combustion Engines	Job family and level	Research & Teaching Level 4
School/ Department	Faculty of Engineering	Location	University Park, Powertrain Research Centre

Purpose of role

The purpose of this role is to lead and deliver individual and collaborative research in the area of marine propulsion and make a key contribution to the direction of research programmes in the Powertrain Research Centre in the Faculty of Engineering.

The role will be responsible for generating new intellectual understanding/knowledge through the application of knowledge and for developing ideas for application of research outcomes.

The post holder will sustain and pursue a research plan in hybridised alternative fuelled marine engines and will develop new concepts and ideas. Where appropriate, they will develop and win support for innovative research development proposals and funding bids.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	To take the lead on, plan, develop and conduct individual and/or collaborative research objectives, projects and proposals either as an individual or as part of a broader programme.	5
2	To acquire, analyse, interpret and evaluate research findings/data using approaches, techniques, models and methods selected or developed for the purpose.	30
3	To manage the application of a range of methodologies, approaches and techniques appropriate to the type of research personally being pursued. Where appropriate, investigate and devise research methods and approaches.	10
4	To establish a national reputation and regularly disseminate and explain research findings through peer-reviewed publications, conferences and other appropriate media.	10
5	To communicate complex and conceptual ideas to those with limited knowledge and understanding as well as to peers, using high level skills and a range of media.	10

6	Be responsible for managing and/or monitoring assets and budgets allocated and the use of research resources to ensure that effective use is made of them.	10
7	Be responsible for resolving problems to meet research objectives and deadlines.	10
8	To generate income by developing and winning support for innovative research proposals and funding bids.	5
9	To build relationships and collaborate actively with internal and external contacts, nationally and if appropriate internationally to complete research projects and to advance the discipline.	5
10	Be responsible for the safe conduct of work within work area ensuring that the Faculty's arrangements for compliance with the University Safety Policy are implemented.	5

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> • Practical powertrain laboratory experience and skills (instrumentation specification and setup, optical diagnostics, emissions equipment, test design and execution etc.) • Strong organisational and project management skills • Excellent oral and written communication skills, including the ability to communicate with clarity on complex and conceptual ideas to those with limited knowledge and understanding as well as to peers, using high level skills and a range of media. • High level analytical capability to facilitate conceptual thinking, innovation and creativity. • Ability to build relationships and collaborate with others, internally and externally. • Ability to devise, advise on and manage research programmes. • Highly motivated, self-starting individual • Calm and positive attitude in working collaboratively with a wide range of stakeholders internally and externally, sometimes on challenging and complex multidisciplinary issues 	<ul style="list-style-type: none"> • Experience of heavy-duty dual fuel operation and/or ultra-low NOx operating modes
Knowledge and experience	<ul style="list-style-type: none"> • Excellent understanding of IC engine combustion theory and experimental practice • Experienced in advanced IC engine testing (thermodynamic and optical, single cylinder and multi-cylinder) • Prior experience of advanced engine and vehicle simulation (CFD, GT-SUITE, WAVE) 	<ul style="list-style-type: none"> • Experience of high-speed flow and combustion visualisation and analysis in internal combustion engines • Direct experience of PhD student co-supervision

	<ul style="list-style-type: none"> • Previous experience within collaborative projects involving multiple industry partners • A consistent track record of published research in peer reviewed journals. • Experience of low/zero carbon fuels and clean combustion modes in both thermodynamic and optical engines • Successful track record of multidisciplinary research with both industry and academic partners, with a willingness to work in new technical areas related to the programme (potentially involving short placements at UK based partners). 	
<p>Qualifications, certification and training (relevant to role)</p>	<ul style="list-style-type: none"> • MSc, MEng or BEng in Mechanical engineering (or closely related i.e. Automotive, Aerospace) • PhD, or close to completion, in an appropriate field (i.e. advanced IC engine combustion) or close to completion 	



The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.



The University is a signatory of the Declaration on Research Assessment (DORA). As such we commit to focus on the scientific content of publications (where requested or provided as part of the recruitment and selection process) as a basis for review of quality, and consideration of value and impact of research conducted, rather than any proxy measures such as Journal Impact Factor.

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

- Valuing people** Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
- Taking ownership** Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
- Forward thinking** Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
- Professional pride** Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
- Always inclusive** Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

