



Job title	Research Associate/Fellow in Repair and Evaluation of Thermal Barrier Coatings	Job family and level	Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	Faculty of Engineering	Location	Wolfson, University Park Campus

Purpose of role

The activities within this work will focus on using SPS and mini-combustion flame spray (and other appropriate technologies) to develop repair and maintenance strategies for thermal barrier coatings, new composition development with thermocalc for CMAS interaction and development of thermal spraying process parameters to achieve the required performance/properties. Part of the work will also involve organic coating development. The testing would involve furnace thermal cycling, CMAS with burner rig testing, and the development of brand-new methods for testing. The role-holder will undertake supervision of PhD students, promote and engage in research and training events, collaborate with industrial and academic partner institutions within the project and deliver reports.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	Research and Innovation <ul style="list-style-type: none"> The activities within this work will focus on designing and developing new and novel repair strategies for TBC and added functionalities to existing TBCs to protect from CMAS, development of thermal spraying process parameter, coating microstructure, and optimisation of the TBC system design to achieve the required performance/properties. 	50%
2	Research Proposal Development and Writing <ul style="list-style-type: none"> You are expected to develop and write externally funded research proposal with appropriate support to grow the research agenda. 	10%
3	Project Management <ul style="list-style-type: none"> Supporting the project leader (Andy Norton, Dragos Axinte and Tanvir Hussain) and the research team within this collaborative project. This will consist of: preparing plans, deliverables, templates, keeping risk and change register, organising meetings, keeping communication with the project partners, contributing to the intellectual properties, including interaction with other early stage researchers, participation in meetings and discussions and online activity. Support other research strands within REPLENISH project when required. 	20%
4	Academic papers and reports	15%

	<ul style="list-style-type: none">▪ Production of reports and journal publications, dissemination of results - presentations and travel to meetings and/or outreach to the industry, scientific community	
5	Any other duties appropriate to this post as required by their line manager	5%

Person specification

	Essential	Desirable
Skills	<ul style="list-style-type: none"> ▪ Skills in Plasma Spray, Thermal Barrier Coating (TBC) and CMAS ▪ Laboratory skills in Metallography sample preparation ▪ Excellent communication and oral presentation skills ▪ Strong organisational skills and project management skills ▪ Excellence at writing research proposals ▪ Well organised and self-motivated, able to work independently and as part of a team 	<ul style="list-style-type: none"> ▪ Skills in process parameter development in thermal spray ▪ Skills in equipment design and modification using CAD ▪ Skills in Machine Learning ▪ Skills in MatLab ▪ Skills in Python programming
Knowledge and experience	<ul style="list-style-type: none"> ▪ Experience in publication of academic journal papers ▪ Experience in presenting at international conferences ▪ Demonstrated creativity and leadership in problem solving ▪ Significant demonstrated ability of teamwork ▪ Experience in Suspension Plasma Spray or Combustion Spray or thermodynamics or CMAS ▪ Experience of working with multiple project partners, experience in project management 	<ul style="list-style-type: none"> ▪ Previous research experience at the postdoctoral level ▪ Experience in writing successful research bids ▪ Previous experience within collaborative industrial projects ▪ Experience with liaising with external partners
Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> ▪ PhD (or near to completion) or equivalent in Coatings Technology or Thermal Barrier Coatings or thermodynamic modelling/ CMAS 	<ul style="list-style-type: none"> ▪ PhD in Suspension Plasma Spray (SPS) of TBC



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 friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
- Taking ownership** Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
- Forward thinking** Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
- Professional pride** Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
- Always inclusive** Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others



