

## Post Description

Post	Research and Development Engineer - KTP Associate (Advanced rotary engine)	Position no: 15743
College / Directorate / Institute	College of Engineering, Design & Physical Sciences	
Grade	KTP Associate	
Contract type	Fixed-Term 28 Months	
Full time/Part time	Full Time	
Accountable to	PI (Prof. Hua Zhao) and Academic Lead (Dr X Wang) at BUL Mr Nathan Bailey and Dr Anna Dragos at AIE Ltd.	
Reports	N/A	
Internal stakeholders	Dept of Mechanical and Aerospace Engineering – Academic Staff & Students, Central College Research offices & Management accounts and RSDO	
External stakeholders	Advanced Innovative Engineering Ltd (AIE)	
Date reviewed	June 2024	

### Main accountabilities:

- Plan own day-to-day research activity to deliver the project objectives as detailed in the KTP project proposal.
- Transfer knowledge in design and development of 1D and 3D models of fuel injection and combustion; to set up and perform optical measurements of fuel injection and engine experiments for model validation.
- Maintain an up-to-date project plan and provide a progress report for presentation at regular Local Management Committee (LMC) meetings.
- Forecast and monitor project finances.

### Key duties and responsibilities:

- The post holder, working with colleagues from AIE Ltd and Brunel University London, will develop 1D and 3D models of fuel injection and combustion and perform optical measurements of fuel injection and engine experiments for model validation
- The role will act as a liaison between the University and AIE Ltd enabling and ensuring knowledge is passed between the two organisations and embedded in AIE for future development.
- The output of this project is to establish and validate 1D and 3D fuel injection and combustion models, to set up and perform optical measurements and engine testing for model validation and to embed the learned knowledge into the R&D team at AIE Ltd.

The post holder will also be required to acquire good testing skills and put these into practice in the lab environment.

The role will also require:

- Presenting at conferences and interaction with peers.
- Liaising and interacting with customers to identify requirements.
- Production of relevant technical papers and presentations

## **Post Profile**

Post holders will be expected to actively participate in knowledge transfer between the University and the Company

- Take initiative in the planning of research.
- Acquiring and interpreting research data and results.
- Knowledge transfer between the University and AIE Ltd

## **Management of Staff and Students (Responsibilities and Accountability)**

- To provide appropriate advice to staff and students on their research area or research methodologies

## **Brunel Values**

### **Open**

We are welcoming and believe in the power of diversity. We are transparent in our decisions and deliver on what we say.

### **Courageous**

We seek and take on ambitious challenges. We are brave and committed to thinking differently. Nothing stops us from going after our goals.

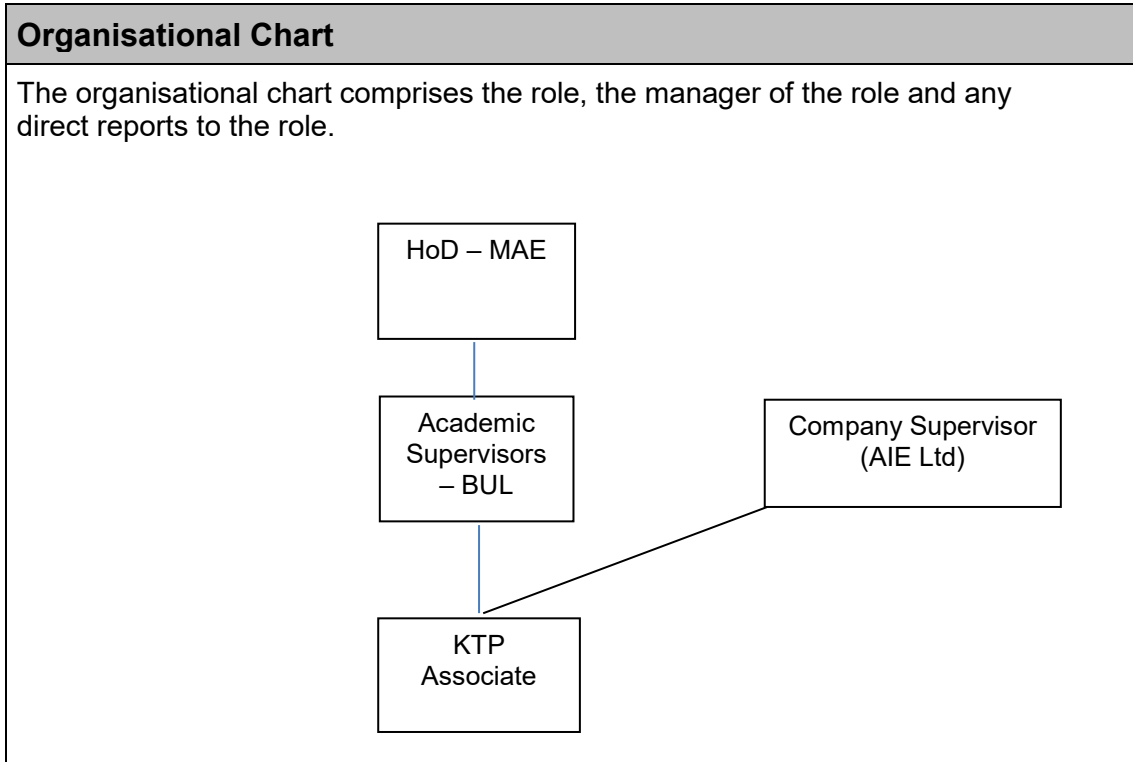
### **Inventive**

We are purposeful in an ever-changing world. Collaborating and innovating to reach our full potential and to change lives - and the world - for the better. We celebrate breakthroughs and strive for the best.

## **University Employment Policy:**

1. Undertake any other reasonable duties as required and commensurate with the grade of post.
2. Adhere to and comply with the provisions of the Data Protection Act and the Health and Safety at Work Act in accordance with University policies.
3. Undertake all duties and responsibilities in compliance with the rules and regulations encompassing equal opportunities to help foster a diverse workforce.
4. Adhere, comply and work in accordance with University and Departmental policies, procedures and codes of conduct.
5. Promote the University's Environmental Policy and demonstrate commitment to it through actions and decision making.
6. Actively participate in on-going professional development activities as requested.

7. The Associate can register for a PhD degree at the University as a part-time PhD student and the tuition fees are waived during the employment period (subject to the standard PhD entry requirements being met).



Disabled applicants meeting the Essential criteria will be guaranteed an interview as part of the University's commitment to the Disability Confident Scheme.



## Person Specification

Attributes	Criteria	Essential /Desirable	How measured
Education, qualifications & training	Good honours degree in Mechanical Engineering at least 2:1 or above	E	Application form
	MSc/MEng in Mechanical Engineering	D	Application Form
	PhD in Internal Combustion Engines	D	Application form
Experience	Background Knowledge in Operating internal combustion engines.	E	Application form, Interview
	Fuel injection testing and imaging via high speed camera Engine instrumentation and testing on engine dyno testbed	D	Application form, Interview
	Engine data acquisition system and data analysis.	D	Application form, Interview
	1D engine modelling (e.g. Ricardo WAVE) and analysis 3D CFD engine modelling (e.g. Star-CD) and analysis of fuel injection and combustion process.	E	Application form, Interview
	3D CAD modelling experience	D	Application form, Interview
	Details of previous employment/research and/or academic achievements applicable to the post over the past 2 years.	E	Application form, interview
Knowledge Skills & Abilities	Evidence of current knowledge in the subject area.	E	Application form, Interview
	Demonstrate ability in acquiring and Interpreting research data and results.	E	Application form, Interview
	Ability to compile reports and give/participate in presentations.	E	Application form, Interview
	Ability to draft research papers for Publication in appropriate academic journals.	E	Application form, Interview

Additional Requirements (not included above)	Practical engineering with hands on experience.	D	Application form, Interview
--	---	---	-----------------------------

### Job Hazard Assessment

Any identified hazards have undergone appropriate Risk Assessments.

Please tick all relevant workplace hazards identified with this post.			
Currently the University, as a minimum runs Health Surveillance programmes for staff working with skin and respiratory sensitisers, Biological Agents Class 2 and above and GMOs.			
Display screen <input checked="" type="checkbox"/> equipment	Manual handling <input checked="" type="checkbox"/>	Prolonged standing e.g. 1 hour plus <input type="checkbox"/>	Prolonged sitting e.g. 1 hour plus <input checked="" type="checkbox"/>
Biological agents: Class 2 and above and GMO Class 1 <input type="checkbox"/>	Human blood, tissue or fluids <input type="checkbox"/>	Respiratory sensitisers or laboratory allergens e.g. animals <input type="checkbox"/>	Skin Irritants/Chemicals <input type="checkbox"/>
Work in confined Places <input type="checkbox"/>	Ionising radiation <input type="checkbox"/>	Noise (more than 80 dba-8 hrs. law) <input type="checkbox"/>	Lone working <input type="checkbox"/>
Use of dangerous machinery <input type="checkbox"/>	Electrical hazards <input type="checkbox"/>	Shift work/night work <input type="checkbox"/>	Work outdoors <input type="checkbox"/>
Neck & arm vibrating equipment <input type="checkbox"/>	Fork lift truck driving <input type="checkbox"/>	Work at heights <input type="checkbox"/>	Lasers <input type="checkbox"/>
Any other hazards (e.g. food handling) please specify and ensure that appropriate guidance has been received from the Health & Safety office:			
Physical demands of the job	Lifting <input type="checkbox"/>	Carrying <input type="checkbox"/>	Bending <input type="checkbox"/>
Pushing <input type="checkbox"/>			
If lifting/carrying duties expected, please give details of heights/weight load(s) the individual is expected to lift/carry and frequency:			
Travel/Off-site working:	100% of time	UK <input checked="" type="checkbox"/>	Overseas <input type="checkbox"/>
Driving for work:	None <input checked="" type="checkbox"/>	Occasionally <input type="checkbox"/>	Weekly <input type="checkbox"/>
Management responsibility:		Supervisor <input type="checkbox"/>	Non-supervisory <input checked="" type="checkbox"/>
Hours of work:	Full time <input checked="" type="checkbox"/>		Part time <input type="checkbox"/> hours
Non-standard contractual hours? (evenings/weekends) Frequency, number of hours, type of work outside standard hours:			
Other – including occasional or possible work hazards (please specify nature and frequency):			