| Advanced Research Engineer – Materials Technology, Coatings fixed term for 30 months (KTP Associate) | | | |
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| **School / Department:** | Department of Management, Business and Marketing and Department of Engineering | **Grade:** | *£38000-42000* |
| New appointees to Birmingham City University will ordinarily be appointed at the entry point of the appropriate grade | | | |
| **Responsible to:** | Academic Lead | **Responsible for:** | N/A |

## Job Purpose

This position forms part of the Knowledge Transfer Partnership (KTP) programme co-funded by InnovateUK and Hockley Mint Limited. The KTP Associate will work on a 30-month collaborative innovation project to develop novel engineered alloy systems that reduce dependency on traditional high-content precious metal alloys whilst maintaining the optical, mechanical, durability, and luxury characteristics required for commercial jewellery applications.

**The Project**

The project focuses on developing and validating sustainable alloy systems using optimised combinations of precious and non-precious metals, advanced surface engineering, and circular manufacturing principles. Experimental pathways will investigate copper-zinc alloy systems, lightweight polymer-based materials, and electrum-inspired lower-carat alloys followed by material characterisation and performance testing. The project will focus on alloy chemistry optimisation, optical and microstructural behaviour, manufacturability, recyclability, durability, and surface engineering. Experimental work will include casting trials, PVD deposition, electroplating, anodising, wear and corrosion testing, sustainability assessment, and market validation within live commercial jewellery manufacturing environments.

## Main Activities and Responsibilities

The successful candidate will lead the development of novel alloy systems for Hockley Mint Limited. The position is for 30 months. The expected start date is as soon as is practical.

The Associate will work on:

1. New alloy development based on experimental work including processing of materials (casting, thermo-mechanical processing etc) and coating (PVD deposition, electroplating and anodizing)
2. Testing and characterisation of the developed materials including mechanical and optical response, chemical and corrosion testing and biocompatibility
3. Assessing the sustainability of the new alloy systems, developing processes that embed circular credentials in the manufacturing and commercialization of the products
4. Developing a commercialisation document that will allow the company to implement a route to market plan
5. Developing project and milestone documents (presentations, risks registers, health and safety assessments)

The role requires the successful candidate to:

1. Undertake appropriate knowledge base training
2. Undertake health and safety assessments, project management training
3. Travel abroad and work with collaborative partner institutions
4. Take part in induction programs offered by both Hockley Mint and BCU
5. Write technical documentation and reports for stakeholders
6. Scope and complete mini-projects and present findings to the company and relevant committee

| Person Specification | |
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| **Essential Criteria** | **Application Form / Support Statement / Interview** |
| 1. A minimum master's degree qualification in either Materials Science, Metallurgy or Chemistry | Application Form / Support Statement / Interview |
| 2. Experience in material processing, testing and characterisation, including coating. | Application Form / Support Statement / Interview |
| 3. Experience in writing technical documentation (manuals, reports, papers etc). | Application Form / Support Statement / Interview |
| 4. Excellent communication skills to express ideas effectively, orally, graphically and in writing to articulate complicated matters between the academics and the company project team members | Application Form / Support Statement / Interview |
| 5. An ability to work to tight deadlines with diligence, attention to detail, and maintain high standards of work | Application Form / Support Statement / Interview |
| 6. An ability and aptitude to work effectively as part of an interdisciplinary team; and self-management and planning skills to make optimum use of time | Application Form / Support Statement / Interview |
| 7. Strong leadership skills in successfully implementing and embedding new innovations within a company or organisation | Application Form / Support Statement / Interview |

| Desirable Criteria | |
|---|---|
| 1. PhD (awarded or near completion) in Materials Science, Metallurgy or Chemistry or a closely related discipline will be an advantage | Application Form / Support Statement / Interview |
| 2. Experience in undertaking multi-disciplinary projects | Application Form / Support Statement / Interview |
| 3. Willingness to travel and undertake experimental work abroad. | Application Form / Support Statement / Interview |
| 4. Academic acumen to enable successful reporting through research publications in academic journals and marketing/training materials | Application Form / Support Statement / Interview |
| 5. Practical experience of working in the field of metallurgy | Application Form / Support Statement / Interview |
| **Personal Skills** | |
| 1. Enthusiastic, self-motivated and able to take a proactive role in delivering the proposal's work plan successfully. | Application Form / Support Statement / Interview |
| 2. Practical interpersonal skills to establish good working relationships with colleagues, stakeholders, and industrial partners. | Application Form / Support Statement / Interview |
| 3. Excellent communication skills to express ideas adequately and articulate complicated matters between the academics and the company project team members either orally or in writing | Application Form / Support Statement / Interview |
| 4. Excellent analytical, problem-solving, and computational skills, along with being adept at applying knowledge to commercial projects, driving value and making an impact where possible. | Application Form / Support Statement / Interview |
| 5. Strong leadership and project management skills. | Application Form / Support Statement / Interview |

- Application Form – assessed against the application form. Normally used to evaluate factual evidence e.g. award of a qualification. Will be assessed as part of the shortlisting process.
- Cover Letter & CV - applicants are asked to provide a statement to demonstrate how they meet the criteria, and may reference their CV. The response will be assessed as part of the shortlisting process.
- Interview – assessed during the interview process by either competency-based interview questions, tests, work-related exercise, presentation and discussion, or teaching session etc.