

Systems Engineer (KTP Associate)

School / Department:	School of Architecture, Built Environment, Engineering and Computing	Grade:	£38,000 - £42,000
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 Innovate UK and UB Healthcare Ltd. The Systems Engineer (KTP Associate) will work on a 25-month collaborative innovation project to develop an AI-powered software platform to automate workflows, integrate patient and provider data, and support decision-making for UB Healthcare Ltd, for use in load-bearing applications.

The Project

This Knowledge Transfer Partnership (KTP) project aims to design, develop, and embed UBHealthcare360, an innovative, scalable, AI-enabled digital platform that will transform how UB Healthcare manages complex care placements, referrals, brokerage services, and operational decision-making.

The overarching aim of the project is to reposition UB Healthcare as a digitally enabled, data-driven organisation capable of delivering faster, more transparent, and more efficient care coordination services to NHS and Integrated Care Board (ICB) partners.

To achieve this, the project will:

- Conduct a feasibility study and requirements analysis to define system scope, interoperability needs, and strategic KPIs
- Design a secure, modular, and scalable system architecture aligned with TOGAF and service-oriented principles
- Develop an integrated digital platform incorporating workflow automation, real-time performance dashboards, and secure data governance mechanisms compliant with UK GDPR and NHS standards
- Embed AI-powered analytics to support proactive placement management, predictive risk assessment, and evidence-based care allocation decisions
- Deliver measurable operational impact, including reduced referral turnaround times, improved data accuracy, enhanced care coordination efficiency, and increased organisational capacity to secure NHS contracts
- Establish a sustainable digital capability within UB Healthcare through structured knowledge transfer, technical upskilling, and commercialisation planning

The project will generate both technological innovation and organisational transformation by embedding scalable digital infrastructure and AI-driven decision-support systems that position UB Healthcare for long-term growth, improved service quality, and enhanced competitiveness within the healthcare brokerage market.

Main Activities and Responsibilities

The KTP Associate will lead the end-to-end design, development, implementation, and embedding of the UBHealthcare360 digital platform, working closely with UB Healthcare senior management and the Knowledge Base team at Birmingham City University.

The KTP Associate will work on:

1. Feasibility & Requirements Definition

- Conduct a feasibility study assessing technology options, deployment approaches, and organisational readiness
- Lead stakeholder engagement activities, including workshops and interviews, to define user needs and operational challenges
- Translate business and process requirements into formal system requirements (functional and non-functional)
- Define key performance indicators (KPIs) and success metrics aligned to UB's strategic objectives

2. System Architecture & Data Framework Design

- Design a scalable, modular and secure system architecture for UBHealthcare360
- Develop system models, data frameworks and integration specifications to support interoperability with external healthcare stakeholders
- Establish data governance, security and compliance mechanisms in line with healthcare standards

3. Platform Development & Testing

- Develop and configure core system modules, workflows and automation services
- Build and integrate system components, including APIs and reporting dashboards
- Implement structured testing, validation and quality assurance processes
- Maintain comprehensive technical documentation and version control

4. AI Integration & Innovation

- Define and prioritise AI use cases to support proactive placement management
- Develop, test and integrate AI-driven analytics into operational workflows
- Ensure model transparency, validation and continuous improvement
- Quantify efficiency gains and operational impact

5. Deployment, Training & Knowledge Embedding

- Lead deployment planning, configuration and system rollout
- Deliver user training and develop supporting documentation and manuals
- Embed knowledge within UB Healthcare to ensure long-term sustainability

6. Evaluation, Commercialisation & Dissemination

- Evaluate system impact against defined KPIs and performance targets
- Contribute to commercialisation planning and exploitation strategy
- Support the preparation of impact reports, case studies and dissemination materials
- Contribute to academic outputs in collaboration with the Knowledge Base



Person Specification	
Essential Criteria	Application Form / Support Statement / Interview
1. A minimum 2:1 Honours degree in Computer Science, Software Engineering, Artificial Intelligence or a closely related discipline	Application Form / Support Statement / Interview
2. Experience in full software development lifecycle (requirements analysis, design, development, testing, deployment)	Application Form / Support Statement / Interview
3. Experience working with version control systems (e.g., Git) and maintaining technical documentation	Application Form / Support Statement / Interview
4. Strong programming skills in at least one modern back-end language (e.g., Node.js/JavaScript, Java, Python, C#, or similar).	Application Form / Support Statement / Interview
5. Front-end development experience using modern frameworks (e.g., React, Angular or similar).	Application Form / Support Statement / Interview
6. Understanding of software architecture principles (e.g., modular design, layered architecture, microservices concepts).	Application Form / Support Statement / Interview
7. Knowledge of relational database design, data modelling, and data governance principles.	Application Form / Support Statement / Interview
8. Understanding of API design and system interoperability concepts.	Application Form / Support Statement / Interview
9. Experience implementing structured testing approaches (unit, integration, performance testing)	Application Form / Support Statement / Interview
Desirable Criteria	
1. A master's degree or PhD [awarded, recently submitted, or near completion] in a relevant field is highly desirable	Application Form / Support Statement / Interview
2. Experience translating business requirements into technical system specifications	Application Form / Support Statement / Interview
3. Knowledge of AI/ML fundamentals, including classification, regression, model validation, and performance metrics	Application Form / Support Statement / Interview

4. Understanding of software security principles and data protection requirements (e.g., GDPR awareness)	Application Form / Support Statement / Interview
5. Familiarity with cloud-based or hybrid deployment environments	Application Form / Support Statement / Interview
6. Experience designing and developing modular, scalable systems or distributed applications	Application Form / Support Statement / Interview
7. Experience with containerisation technologies (e.g., Docker, Kubernetes).	Application Form / Support Statement / Interview
8. Experience with message brokers or event-driven systems.	Application Form / Support Statement / Interview
9. Experience with performance/load testing tools.	Application Form / Support Statement / Interview
10. Experience designing data governance frameworks	Application Form / Support Statement / Interview
11. Familiarity with healthcare interoperability standards	Application Form / Support Statement / Interview
12. Experience working with data analytics or machine learning models, including model training and evaluation.	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.