**Job Description**

**Job Title: Advanced Research Engineer**

**Career Level: 4**

**Department or Business Sector:**   **DE- DIS**

**Location**: Coventry/Liverpool, UK

**Reporting to (manager’s job title): Designated Resource Manager**

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| **Heading:** | **Description** |
| 1. **Job Purpose / Impact** | The Advanced Research Engineer (ARE) role is focused on the technical delivery of projects and support the development of project related activities across The MTC, working across various technology departments and industrial sectors.  Largely independent supply of larger project's technical deliverables, and act as Technical Lead for smaller projects where required; ensuring work meets or exceeds agreed customer requirements, within agreed budgets and timescales.  Undertake innovative Engineering research work focused primarily on technology/manufacturing readiness levels (TRL/MRL) 3+, and able to demonstrate industrial project delivery.  To contribute in the identification, technical specification and delivery of new and novel technology capability into the MTC, customers, or industrial members premises.  This role will require involvement in all aspects of the project delivery including but not restricted to: concept generation, detailed design, ensuring compliance with all relevant standards, technical support of commissioning, awareness of project budget and deliverables. |
| 1. **Communication** | Excellent interpersonal and organisational skills are required for the role; able to demonstrate a high standard of report writing and presentation skills.  A desire to support colleagues and transfer knowledge in area of expertise to others in the department, and also to wider MTC colleagues.  Able to support senior colleagues with customer and internal partner liaison in collaborative projects, able to lead technical liaison with customers during project to ensure delivery;  Evidence that commercial awareness is developing;  Own career development through mentoring coaching and training courses. |
| 1. **Innovation** | Contribute and support senior colleagues in the theme business and technology strategy;  Supporting of proposal of new capability development projects that align with the Department, Technology Theme, and overall MTC strategy, and able to explore different routes for project funding (internal, industrial, or CR&D funding).  Involved with horizon scanning of technologies and new approaches to solving industrial problems across a range of industrial sectors.  Able to lead engagement with existing customers to win repeat business. |
| 1. **Knowledge** | Degree calibre engineer, technologist, scientist or mathematician.  Ideally working towards professional registration.  Demonstrable programming experience using high level languages (e.g. C, C++, Java, C#, Python)  Experience with industrial communication protocols and interoperability standards (e.g. OPC-UA, MQTT, ProfiBus, ModBus TCP).  Experience with industrial communication protocols and interoperability standards (e.g. OPC-UA, MQTT, ProfiBus, ModBus TCP).  Experience with data acquisition from various sources, including robots, machine programming logic controllers (PLC’S), sensors and edge devices.  Experience with embedded systems and IIoT technologies, such as Wi-Fi, LoRa, Bluetooth and Zigbee.  Experience with design and development of digital connectivity and interoperability system solutions in applications for manufacturing, logistics, infrastructure and/or similar, including upgrade of legacy industrial systems with IIoT, edge and cloud based technologies.  Good level of understanding of end-to-end networking and integration of data acquisition solutions for manufacturing facilities.  Experience with Systems Engineering methodologies, system  modelling tools and performing customer requirements analysis. |
| 1. **Person Specification** | All aspects of the role are to be carried out as an exemplar within the business in adhering to the MTC RIGHT way:   * Acting responsibly, putting MTC’s interests ahead of personal ambition; * Providing inspirational leadership to all who come in contact with you; * Delivering in the broadest sense a great working environment; * Leading with humility, honesty and integrity in all that you do; * Promoting teamwork, supporting through difficult times and collectively celebrating our successes.   In addition:  Committed to work collaboratively and network effectively, able to recognise the contribution of others and team-work with a one MTC mind-set;  Pragmatic hands on experience, providing problem solving approach and who is willing to physically participate in completion of work when required.  Self-motivated and a self-starter, with the ability to work autonomously to meet deadlines, budgets and quality expectations, both within a team, or independently.  Experience working where subsequent adherence to associated process and policy is critical to maintain customer confidentiality.  In addition:  Whilst not obligatory, there is a preference that you are willing and able to apply for Developed Vetting security clearance by the UK Government and undertake duties associated with this level of clearance;  Behaviours – MTC holds a high standard of professional behaviour and conduct of all colleagues; the environment across The MTC is one of collaboration. Colleagues are supported by leaders across the business to be empowered to challenge all colleagues in the MTC Right Way that is respectful and constructive. |

**Definitions**

**1. Job purpose / Impact:**

*Provide an overview of the job, its context in the company;*

*Describe the level and scope of influence and authority that the position should have (is this within the immediate job area or more widely across a business unit or potentially the business as a whole?);*

*Describe the level of impact by reference to the daily scope of the role – does the role holder follow clearly defined procedures under close supervision or is there latitude to set objectives or even strategies?*

**2. Communication:**

*Outline the scope, extent and nature of the communication that this role is responsible for, on a regular basis;*

*What communication skills are required? (to convey information, to reach agreement, to manage communication?);*

*What is the context: internal or external?*

**3. Innovation:**

*To what extent is the role holder required to identify, develop and make improvements to ideas, techniques, procedures, services or products?*

*What is the level of complexity? (are problems generally in one area and well defined or are they multi-dimensional?)*

*Is the role holder expected to make minor changes or to enhance or replace entire processes?*

**4. Knowledge:**

*What is the nature and extent or depth of knowledge required in this job to achieve objectives and add value?*

*Knowledge may be acquired through formal education and/or work experience;*

*First specify the depth of knowledge to be applied and then identify whether the role holder would apply the knowledge as a team member, team leader or manager of teams.*

**5.** **Person Specification:**

*The type of person suitable for the role:*

*For example, does this require someone who enjoys working with lots of detailed data, or someone who enjoys working with customers or potential customers;*

*Would this role be suited to someone with high levels of resilience and an aptitude for working under pressure, to meet deadlines?*

*What sort of prior experience would be necessary or helpful?*