**Job Description**

**Job Title: Advanced Research Engineer**

**Career Level: 4**

**Department or Business Sector: Automation, Mechatronics and Electronics Manufacturing Advanced Production Systems (APS) - Technology**

**Location**: Coventry/Liverpool, UK

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

|  |  |
| --- | --- |
| **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** | A BSc/BEng degree in Electronics engineering, Electrical engineering or other relevant topic.  Multi-year industrial or academic research centre experience in state-of-art power electronics engineering.  Experience of high power (100kW+) and high voltage electronics.  Experience of high-power inverter design, knowledge of inverter/motor drive loss, efficiency, and cooling.  Understanding of motor drive system testing and optimization from the component to system level.  Experience of state-of-art power electronic components (e.g., IGBTs, diodes, SiC/GaN transistors, gate drive, transformers, and capacitors).  PCB circuit and layout design experience.  Proven history of electronic product design, test, and failure analysis and investigation.  Electric machines design and control knowledge, experience of electronic and hybrid system simulation tools and advanced high power/high voltage power electronic component testing are desirable. |
| 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. |