



Job title	Senior Mechanical Design Engineer	Job family and level	Administrative, Professional and Managerial Level 5
School/ Department	Mechanical and Aerospace Systems Research Group, Engineering	Location	Jubilee Campus

Purpose of role

The Mechanical and Aerospace Systems (MAS) group requires a Senior Mechanical Design Engineer to support a wide range of experimental research across the group through high-quality and precision design. The MAS group has a large and friendly intra-disciplinary team of researchers, engineers, technicians, support staff, and academics who work together to deliver research from fundamental to high level technology readiness level (TRL).

The role will involve applying a wide range of professional engineering skills relating to the design, manufacture, commissioning, and use of test facilities in support of MAS research. The successful applicant will have experience in the design of machines as well as experimental setups, and they will have a track record of working with suppliers and sub-contractors to deliver precision engineered components, assemblies, and systems. The role holder will have a significant role in implementing and managing complex industrial research projects and will provide support and supervision to others within the team.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	Engineering Design Activities ▪ Work directly with academics and industrial customers to define detailed requirements to ensure that research deliverables are met. ▪ Develop the mechanical design of complex test and experimental rigs ▪ Produce 3D CAD models and engineering drawings of complex components and assemblies to correct standards (such as BS8888). ▪ Specify and procure specialist test rig and experimental equipment. ▪ Manage and guide subcontractors through clear guidance on design, manufacturing, and/or interpretation of requirements. ▪ Develop build philosophies, tooling philosophies and metrology plans for the assembly of research demonstrators. ▪ Document all system elements, including design, manufacture, commissioning, maintenance and liaise with senior technical staff in the creation of HSE documentation.	60%
2	Team Leadership and Project Management ▪ Manage and ensure change control and PLM systems for all designs within the group.	20%

	▪ Technical management of complex industrially focussed collaborative research projects. ▪ Lead on the consideration of all health and safety matters in mechanical rig design, ensuring that all best practices and standards are followed by the wider team throughout the design processes.	
3	Engagement and Stakeholder Liaison ▪ Regular formal and informal liaison will be required with stakeholders, internal and external. ▪ Management of commercially confidential data, including managing the secure electronic storage of these data. ▪ Proactive monitoring and reporting of project milestones/deliverables through project management. ▪ Dissemination of design progress and through oral and poster presentations at meetings, conferences, and seminars. ▪ Lead and document formal design reviews as part of design process and engineering lifecycle. ▪ Assist the research group in results exploitation through supporting patent applications or publications where appropriate.	10%
4	Reporting and Proposal Development ▪ Attendance at meetings with presentation to internal and external stakeholders. ▪ Timely liaison with internal and external stakeholders to raise and resolve issues/challenges that arise during projects. ▪ Creation of written reports for internal and external stakeholders.	10%

Person specification

	Essential	Desirable
Skills	▪ Ability to independently manage workload, proactively alerting line manager of issues, with suggestion of potential resolution routes. ▪ Organising and leading meetings, recording of meeting information and creation of actions from meetings. ▪ Ability to liaise with a wide range of internal and external stakeholders including, but not limited to, industrial technical specialists, experimental researchers, technicians, project managers and academic staff. ▪ Ability to interpret customer requirements into realizable experimental facilities and systems. ▪ Ability to independently prioritise actions, workloads, and tasks, including the ability to analyse situations and re-plan to make best uses of resources to ensure delivery of research aim and objectives.	▪ Line management experience.
Knowledge and experience	▪ Significant knowledge and experience of CAD design and software packages. ▪ Experience in product lifecycle management (PLM) and change control systems. ▪ Experience and knowledge of the engineering design lifecycle. Experience in defining high precision rig requirements. ▪ Experience in the mechanical design of complex (high speed) rotating machinery including shaft and bearing systems with lubrication and sealing. ▪ Knowledge and experience of a wide range of mechanical transmission components. ▪ Good knowledge of a range of manufacturing processes. ▪ Experience of tolerance analysis and the use of GD&T	▪ Experience in working to relevant standards, such as BS EN ISO 12100, BS EN ISO 13849, BS EN ISO 60204-1. ▪ Experience of interpretation of work-related regulations and procedures.

Qualifications, certification and training (relevant to role)	▪ Degree in mechanical engineering or equivalent.	▪ Ph.D in mechanical engineering or similar. ▪ Professional engineering qualification. ▪ Chartered Engineer status. ▪ Project management qualification.
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Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people	Understands that it is essential to provide a structure that people can thrive in. Knows how to communicate with people to create a healthy working environment and get the best out of people.
Taking ownership	Communicates vision clearly, providing direction and focus. Knows how to create a productive environment where people are inspired and can work cross-departmentally in partnership.
Forward thinking	Has the ambition to be a pioneer in own area, anticipating the future change, needs and challenges. Knows how to innovate within their work context and champions others to be inspired to be part of this ambition
Professional pride	Keeps up to date on latest thinking, trends and work practices. Supports team to be thought leaders; willing to challenge if obstacles get in the way.
Always inclusive	Establishes far reaching partnerships, well beyond own area across a broad range of networks. Understand role to pay due regard to the needs of the whole community.

Key relationships with others



