



## Job Summary

**Job Title:** STAR Accelerator Prototype Systems Design Engineer

**Grade:** 8

**Salary:** £44,045 to £49,553 per annum

**Department:** College of Science and Engineering

**Hours/Contract:** Full time, open ended subject to fixed term funding. Funding is available to 31 October 2022

**Reference:** 1612

### Role Purpose

This work will focus on the systems engineering and mechanical design of prototypes and manufacture of one off items along with consultancy work to aid local SME based industry.

It will use a variety of design tools and software in order to deliver the mechanical and systems design aspects of the STAR (Space Technology Applications from Research) Accelerator Project, part-funded by the European Regional Development Fund (ERDF), and enable the project to achieve its necessary outputs. The local SME industry will encompass a wide range of artefacts and sectors including Life Sciences/Biotech, transport, space instrumentation, energy, Food and Drink and creative industry sectors. The STAR Accelerator technical team will consist of three posts: this post; a prototype manufacturing engineering post; and an electronic engineering post; supported by a business manager and admin support.

Alongside the systems design role, an important aspect of the role will be to proactively build and maintain research, business and industry links and activity which are aligned with the University's space and earth observation and engineering expertise and its Space Park Leicester project, in order to ensure the successful delivery of the ERDF and University outputs and sustainability of the STAR Accelerator Project beyond the current funding stream.

The role may suit a Systems Engineer with a background in Mechanical Engineering, or an experienced Mechanical Engineer with some Systems experience, seeking career progression into a Systems Engineering role.

Main Duties and Responsibilities	% Time
<p><b>Operational Expertise</b></p> <ul style="list-style-type: none"> <li>Apply expertise in system and mechanical design (and its application) to develop the briefs scoped by local SMEs, Academic Lead and Business Manager into well designed, manufacturable, solutions. This work will be conducted with appropriate inputs from other team members. The aim is to produce bespoke results/applications for the STAR Accelerator clients and centre users, this will involve: <ul style="list-style-type: none"> <li>The supervision and/or delivery of technical design services in situ and/or at clients' business premises as appropriate.</li> <li>The use of CAD (Siemens NX) software in order to design and develop prototypes and items for one off manufacture, using those using new materials and techniques.</li> </ul> </li> </ul>	60





- The use of Finite Element Analysis to aid the mechanical design and development.
- The identification, research and development of new opportunities, methods and work practices to extend the range of services by STAR Accelerator generally; specifically the range of product development applications.
- Mentoring technical staff working in the STAR Accelerator Project, with guidance from the Academic Director and Leicester Space Park CEO.
- Production of a range of documents and designs for different audiences (e.g. technical designs and reports for commercial clients and scientific summaries for inclusion in academic papers).

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**Business Development**

- Help recruit and support local SMEs in order to build a strong business cluster with collaborative opportunities.
- Help develop and deliver innovation support activities for the benefit of SMEs and University graduates in order to deliver the STAR Accelerator project successfully, to target, on time and budget.
- Contribute to the sustainability of the STAR Accelerator project by helping to build industry networks and partnerships to develop new sales and ensure a flow of research income to the University.
- Design and deliver, individually and as part of a team, design and technology demonstration workshops and skills development sessions to local industry in order to disseminate knowledge and enable new applications of research and the utilisation of latest design and manufacturing techniques.
- Contribute technical expertise to the production of presentations, publicity material, and website content, from suitably commercially non-sensitive designs and case studies you have worked on.
- Work closely with the Business Manager and the STAR Accelerator team in order to shape the strategic direction of STAR Accelerator applications and to establish effective operations and systems to comply with the requirements from the University and the grant awarding bodies.
- Support the management team and the health and safety in the STAR Accelerator project.
- Identify and match academic research strengths with local SME needs from across the University by liaising with and working closely with other innovation/knowledge exchange projects across the University. Work closely with the Academic Director and Business Manager to achieve this.





<p><b>Resource Management</b></p> <ul style="list-style-type: none"> <li>• Manage allocated resources effectively (orders, goods receipt, invoice verification and asset management modules are processed and accurate records are maintained) so that objectives are delivered within budget.</li> <li>• Maintain the design hardware and software in optimal working conditions, within the budget and timescales of STAR Accelerator.</li> </ul>	10
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**Internal and External Relationships**

Work closely with other members of the STAR Accelerator team in order to deliver the STAR Accelerator project business plan.

Work closely with technical SME staff in order to understand the prototype product requirements and constraints. Perform design and analysis iterations to design a product that satisfies these requirements.

Meet regularly with the STAR Business Manager and other STAR Accelerator staff to:

- Discuss the range of STAR Accelerator services offered to clients, on-going contracts, and new prospects
- Feed in technical details of suitable project plans at the pre-contract stage
- Provide updates on the progress of operations on the workshop floor and in the design office across the range of parallel projects being undertaken by STAR Accelerator

Meet regularly with the STAR Business Manager, Head of Regional Business Engagement and other University of Leicester academics and technical staff associated to/seconded to STAR Accelerator to:

- Discuss enhancements required to the hardware, software, and working practices at STAR Accelerator
- Discuss STAR Accelerator project demand
- Support the longevity and the widening scope of the STAR Accelerator activities to new markets

Attend on-site and off-site meetings organised by the Business Manager and the Academic Director with potential clients, to offer systems design support in scoping new activities or in reporting on existing activities. Liaison will be with technical staff and may include Business Owners, Managing Directors and Senior Staff in SMEs.

Liaise regularly, as required, with the University of Leicester purchasing team for procuring consumables and minor equipment in support of the daily operations at STAR Accelerator.

Liaise quarterly with the University of Leicester safety team, on the upkeep of safety at work.

Liaise as appropriate with the University of Leicester IT services, to ensure the software STAR Accelerator relies upon is maintained effectively by IT services. Liaise with IT services on data access and data security of clients.

Meet technical staff operating in the commercial and technical design field under the appointee's leadership.





Provide demonstrations of mechanical design tools and equipment, seminars on design solutions, and workshops to Industry.

Support the activities of junior research staff and university students seconded to STAR Accelerator.

Participate in scientific paper writing and scientific dissemination with academic staff from the University of Leicester and from other educational institutions that may become affiliated to the Centre.

Liase daily or as appropriate with the Space Park Leicester and the Innovation Hub to coordinate the physical access to STAR Accelerator by clients, staff, and stakeholders. Coordinate the use of any shared tools or equipment with the users of the centre.

Liase with colleagues in SPRINT, the Research and Enterprise Division and those based in the Leicester Innovation Hub.

Liase with LLEP Business Gateway, Business intermediaries and support organisations, e.g. FSB, IOD, Chamber of Commerce, Food Park.

### Planning and Organising

Planning and organising own workload and time along with technical staff working in the Centre, working around the schedule of STAR Accelerator stakeholders, the Business Manager, the Director and affiliated academic staff. Prioritise and organise the work schedule of the STAR Accelerator facilities and technologies. Plan the provision of services and external resources for specific projects. Plan and organise the maintenance of the key assets of STAR Accelerator.

Plan and organise delivery of multi-faceted innovation support including specialist workshops and the successful operation of the STAR Accelerator facilities.

### Qualifications, Knowledge and Experience

#### Essential

- 1<sup>st</sup> class or 2:1 undergraduate degree in engineering \*
- Extensive experience in the use of mechanical design tools and software, as evidenced by reports, scientific publications, and/or a portfolio of past projects in the work place\*
- Systems Engineering experience, as evidenced by reports, scientific publications, and/or a portfolio of past projects in the work place
- Significant experience in mechanical design techniques for prototyping and manufacturing\*
- Significant experience of delivering mechanical or systems engineering solutions to a least one of the following sectors: the aerospace; automotive; space; instrumentation; medical; or the transport sector from either research or industry perspective\*

#### Desirable

- Evidence of supervision/co-supervision of technical staff in a research-led environment
- Track record of publication of high quality journal papers
- Membership or/and evidence of activity with professional engineering institutions (preferably chartered engineer registration)





- Experience of delivering innovative engineering design programmes to SMEs

### Skills, Abilities and Competencies

#### Essential

- Competent CAD designer (At least one of AutoCAD, SolidWorks, Siemens NX etc.) \*
- Ability to analyse and interpret complex technical data and give an expert opinion to STAR Accelerator clients from design, test data and Finite Element Analysis simulations\*
- Ability to execute complex workflows involving multiple clients and stakeholders (both internal and external)
- Ability to prioritise tasks and manage own time\*
- Competence in numerical and IT skills
- Excellent interpersonal skills including good team working, communication (written in particular) and leadership skills
- Ability to drive to customers' business premises\*
- Experience in the use of commercial Finite Element Analysis software

#### Desirable

- Competent mechatronics hardware design
- Proficient use of Matlab and of its Signal Processing Toolbox
- Proficient user of LabView for real-time system control
- Workshop delivery and business support to SMEs
- Ability to build strong relationships with core stakeholders, business intermediaries and senior business owner managers
- Ability to write research grant proposals and project proposals with industry

#### *\*Criteria to be used in shortlisting candidates for interview*

### Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

### VITAL

The University encourages all staff to live our [VITAL values](#) which are:  
**Valuing People, Innovators, Together, Accountable, Leaders.**

### Equality and Diversity

We believe that equality, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equality support our efforts to attract a diverse range of high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equality, diversity and inclusion.

