

## Job Description

<b>Job title:</b>	<b>Systems Developer (HPC)</b>
<b>Department:</b>	<b>Digital, Data and Technology Group</b>
<b>Grade:</b>	<b>7</b>
<b>Reporting to:</b>	<b>Advancing Research Computing (ARC) Manager</b>
<b>Location:</b>	<b>University of Bath</b>

### Job purpose

The Systems Developer (HPC) will be part of the Advancing Research Computing (ARC) team responsible for the development and maintenance of the University's High Performance Computing (HPC) environment which supports the University's varied research portfolio.

The post-holder will apply in-depth technical expertise to resolve complex problems, support an active and growing user community, generate innovative ideas and will help to enhance the delivery of the HPC service.

### Source and nature of management provided

Advancing Research Computing (ARC) Manager

### Staff management responsibility

None

### Special conditions

Core University business hours are 9:00 am – 5:20 pm Monday to Thursday and 9:00 am – 5:10 pm Friday. From time to time you will be required to work outside these hours, for example to manage maintenance during less disruptive periods such as a 7:00 am start on Tuesdays for the 'at-risk' period.

The University operates an "out-of-hours" system to ensure service continuity. The post-holder will be asked to join the out-of-hours list and asked to undertake occasional duties outside of core hours including evenings or weekends.

The post-holder will ensure full compliance with all Data Protection laws and any relevant University policies and guidelines.

**Main duties and responsibilities**
**1 Systems development and administration**

- Methodically investigate, analyse and review current systems and processes. Ensure monitoring of quality and performance of systems, in relation to their contribution to desired service levels. Ensure system security and system sustainability and documentation in accordance with agreed standards and procedures.
- Ensure systems change management is carried out in accordance with agreed standards and procedures. Create and manage test and development environments to allow system improvements to be made with minimum impact on services.
- Design, script, code, test and document the deployment and development of Open Source, commercial and custom software, using agreed standards and tools, to achieve well-engineered bespoke solutions, especially when linking together existing systems or providing novel interfaces to existing data.
- Liaise with an active community of HPC users and help facilitate their research through technical knowledge transfer and effective support. Analyse their needs and provide appropriate technical advice, training, hands-on assistance or specialist support where required.

**2 Service management**

- Provide advice and assistance associated with the planning, design and improvement of service and component availability, including the investigation of all breaches of available targets with the instigation of remedial activities following agreed change standards and procedures.
- Employ through-life planning models to ensure information systems continuously meet business needs. Advise customers of supplier product developments and upgrades, advising on implementation.
- Develop implementation plans for dealing with complex requests for change, evaluate risks to integrity of infrastructure, review the effectiveness of change implementation, and suggest improvements to departmental procedures governing change management.

**3 Technical specialisms**

- Provide and maintain a stable HPC service and ensure maximum availability and operation of the service.
- Provide pro-active technical support to an active user community. Assisting users with utilising the resources, script and parallel code compilation,

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	<p>debugging and optimisation, advising on best practices and use of the scheduling system.</p> <ul style="list-style-type: none"> <li>▪ Development and tuning of the scheduling configuration for optimum throughput. Collection of utilisation statistics and identification and resolution of operational problems with the cluster.</li> <li>▪ Propose and develop innovative solutions to enrich the user experience and to enhance service delivery.</li> </ul>
<b>4</b>	<p><b>Additional duties and responsibilities</b></p> <ul style="list-style-type: none"> <li>▪ Support outreach activities to enable exploitation of the HPC service by a broader, and potentially non-traditional, user-base.</li> <li>▪ Represent the University's interests within the HPC sector, linking with regional and national HPC centres, working with HPC Special Interest Group, assisting with presentations at conferences etc.</li> <li>▪ Undertake research into suppliers, markets and product and service categories, to inform and develop purchasing strategy and sourcing plans. Create specifications for procurement of key products and services.</li> <li>▪ Take responsibility for the definition, documentation and satisfactory completion of medium-scale projects identifying, accessing and managing risks to the success of the project. Ensure that realistic project and quality plans are prepared and maintained and provide regular and accurate reports to stakeholders as appropriate.</li> <li>▪ You will from time to time be required to undertake other duties of a similar nature as reasonable required by your line manager.</li> </ul> <p>In addition to University provided training and development, you will undertake sufficient personal and professional development as required, ensuring skills and knowledge are up to date so that the role is performed to the required level.</p> <p>You will from time to time be required to undertake other duties of a similar nature as reasonably required by your line manager.</p> <p>Some occasional travelling may be required, for example to user groups or conferences.</p>

Criteria	Essential	Desirable
<b>Qualifications and training</b>		
Educated to degree level or equivalent qualification or experience in a related field	✓	
Professional project management qualification, such as Agile foundation, PRINCE2 foundation		✓
ITIL (Version 3 or later) Foundation Level Qualification	✓	
<b>Experience/knowledge</b>		
Experience of IT project management and more generally change management within a large organisation	✓	
Experience in the design and the delivery of training courses	✓	
Detailed knowledge and experience of administering Linux servers and a working knowledge of Windows operating system	✓	
Familiar with HPC technologies, including provisioning, job schedulers and low-latency interconnects	✓	
Working knowledge and experience of performant storage solutions (such as Lustre, BeeGFS, GPFS, NetApp)		✓
Knowledge and experience in using one or more scripting languages, such as python, perl, bash, tcl	✓	
Advanced skills in at least one programming language, such as C, C++, FORTRAN, Python, R	✓	
Understanding of parallel programming methodologies	✓	
Experience of designing, building and maintaining bespoke IT solutions, e.g. virtual machines, web services, REST APIs		✓
A sound understanding of the UK HE context		✓

## Person specification

<b>Skills and aptitudes</b>		
Excellent oral, interpersonal and written communication skills	✓	
Proven ability to develop and maintain professional working relationships and collaborations with academics and researchers	✓	
Technical competence and proven troubleshooting skills	✓	
Ability to organise and prioritise own workload to meet required deadlines	✓	
Ability to learn / adapt to new technologies and concepts	✓	
Proven project management skills	✓	
Flexibility and adaptability and an ability to cope with a busy workload	✓	
Innovation and developing creative solutions	✓	
Passion and self-motivation	✓	
Ability to be an effective team worker	✓	

## **Effective Behaviours Framework**

The University has identified a set of effective behaviours which we value and have found to be consistent with high performance across the organisation. Part of the selection process for this post will be to assess whether candidates have demonstrably exhibited these behaviours previously.

### **Managing self and personal skills:**

Willing and able to assess and apply own skills, abilities and experience. Being aware of own behaviour and how it impacts on others.

### **Delivering excellent service:**

Providing the best quality service to all students and staff and to external customers e.g. clients, suppliers. Building genuine and open long-term relationships in order to drive up service standards.

### **Finding innovative solutions:**

Taking a holistic view and working enthusiastically and with creativity to analyse problems and develop innovative and workable solutions. Identifying opportunities for innovation.

### **Embracing change:**

Adjusting to unfamiliar situations, demands and changing roles. Seeing change as an opportunity and being receptive to new ideas.

### **Using resources:**

Making effective use of available resources including people, information, networks and budgets. Being aware of the financial and commercial aspects of the University.

### **Engaging with the big picture:**

Seeing the work that you do in the context of the bigger picture e.g. in the context of what the University/other departments are striving to achieve and taking a long-term view. Communicating vision clearly and enthusiastically to inspire and motivate others.

### **Developing self and others:**

Showing commitment to own development and supporting and encouraging others to develop their knowledge, skills and behaviours to enable them to reach their full potential for the wider benefit of the University.

### **Working with people:**

Working co-operatively with others in order to achieve objectives. Demonstrating a commitment to diversity and applying a wider range of interpersonal skills.

**Achieving results:**

Planning and organising workloads to ensure that deadlines are met within resource constraints. Consistently meeting objectives and success criteria.