

High-Performance Computing (HPC) Specialist

Job Ref: REQ250739

As part of the University's ongoing commitment to redeployment, please note that this vacancy may be withdrawn at any stage of the recruitment process if a suitable redeployee is identified.

Department Summary

IT Services is largely based in Holywell Park, a beautiful area of our green campus with a large car park, good public transport links and next to Burleigh Woods. Loughborough IT came top in the National Student Survey for IT resources & facilities in supporting learning for several years in a row.

We have a very supportive culture, an understanding of work/life balance, with hybrid working available. Staff particularly enjoy the flexibility available and the opportunity to contribute to interesting University wide projects. Colleagues have a wide variety of backgrounds from different areas, bringing a broad range of experiences.

Training is encouraged via secondment opportunities, lots of internal courses run by Organisational Development, job shadow, as well as online learning and external providers. Departmental lunches allow us to get together to meet all colleagues in person on a regular basis, in an informal setting.

Job Description

Job Grade: Management and Specialist, Grade 6

Job Purpose

This role will provide specialist knowledge and skills in the support, maintenance and development of the University's High-Performance Computing (HPC) systems and services and other infrastructure managed by the Research HPC team.

The University HPC cluster is based upon Linux systems including high-performance storage systems and interconnects, and all supporting applications and monitoring systems.

The role will be involved assisting with the full lifecycle of testing, procurement, configuration, deployment, re-configuration, fault finding and decommissioning of server and storage equipment.

The role holder requires a strong working knowledge of Linux servers in a production environment, UNIX shell (bash), Perl, Python, etc.

Job Duties

- Support, maintain and assist with development of the Research HPC IT systems. This involves assisting the service lead(s) with requirements analysis and procurement and the configuration, testing, deployment, re-configuration, fault finding and secure decommissioning of services. This includes the development and maintenance of documentation of the systems.

- Work as an effective member of Loughborough's Research HPC team, with an emphasis on day-to-day system management and providing support to users of the High Performance Computing services.
- Provide introductory training sessions for researchers and assist module tutors in providing introductory training sessions for taught-course students, create supporting training documentation.
- Assist the service lead(s) with particular aspects of the services, such as: provision of a stable service; technical development; monitoring of quality and performance; production of regular reports; change, incident and request management; risk management; contributing to defining standards and monitoring compliance; routine maintenance; liaison with hardware and software suppliers; changes e.g. new versions of system software, firmware, patches.
- Participate in projects, working across the University, which plan and develop new technical platforms for IT services and assist in rolling out these services to users. When assisting in designing and delivering IT services, IT Services Specialists liaise with customers to understand and analyse their requirements, contribute technical content, and work to provide innovative IT solutions to support business critical University functions.
- Identify opportunities to automate tasks in order to improve the delivery of IT service to customers. Undertake the design, build and test of scripts to implement these tasks.
- Receive requests for support from other service delivery staff, researchers, module tutors and students. Prioritise requests in accordance with agreed criteria and the needs of the organisation. Monitor progress of requests for support and ensures users are kept informed. Take corrective action to avoid or minimise delays.
- Within own areas of competence, provide correct responses to requests for support by means of for example: making system modifications in accordance with the defined change process, developing work-arounds or site-specific enhancements, reconfiguring systems, changing operating procedures, training users or operations staff, producing additional documentation, or escalating requests to other staff or software suppliers. Ensure all work is carried out and documented in accordance with required standards, methods and procedures.
- In accordance with agreed procedures, monitor application systems for which responsible by regular scrutiny of reports from the applications software or systems software. Note problems, identify performance trends and reports on them to the service lead(s). Take corrective action to improve performance and to avoid problems arising as part of the agreed change process.
- Ensure that documentation of the supported systems and software is available and in an appropriate form. Ensure log entries of user contacts provide sufficient information for the resolution of subsequent faults and problems.
- Conduct investigations of operational problems, make proposals for improvement, and implement them when appropriate as part of the agreed change process. Participate in reviews of systems performance and in the planning of amendments and upgrades to systems.
- Develop and maintain knowledge of the technical specialism by, for example, reading relevant literature, attending conferences and seminars, meeting and maintaining contact with others involved in the technical specialism and through taking an active part in appropriate professional and trade bodies.
- Be familiar with relevant University procedures and policies (EDI, acceptable use, data protection, freedom of information, information security, purchasing etc) and advise colleagues and end-users accordingly.

- Undertake various other tasks on an occasional basis at the request of more senior staff in the professional service, and to a level commensurate with training, knowledge, grade and skills.

Note: This job description was created in the spirit of the BCS (The Chartered Institute for IT), SFIA (Skills for the Information Age) level 4 with support from the BCS.

Points To Note

The purpose of this job description is to indicate the general level of duties and responsibility of the post. The detailed duties may vary from time to time without changing the general character or level of responsibility entailed.

Special Conditions

All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.

All staff should hold a duty and commitment to observing the University's Equity & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equity & Diversity legislation and University policies/procedures.

Successful completion of probation will be dependent on attendance at the University's mandatory courses which include Belonging and Inclusion and, where appropriate, Recruitment and Selection.

Organisational Responsibility

The line manager for this role will be the Research HPC Team Manager.

Person Specification

Your application will be reviewed against the essential and desirable criteria listed below. Applicants are strongly advised to explicitly state and evidence how they meet each of the essential (and desirable) criteria in their application. Stages of assessment are as follows:

- 1 – Application
- 2 – Test/Assessment Centre/Presentation
- 3 – Interview

Essential Criteria

Area	Criteria	Stage
Experience	Experience in management of IT services with significant user populations	1
	Experience managing Linux servers in a work environment	1,3
	Experience managing shared storage systems in a work environment	1,3
	Experience building, installing and testing serial and/or parallel software for HPC systems	1,3
	Experience of working effectively as part of a team	1,3
	Displays a responsible attitude to following procedures, keeping records, and caring for equipment and other assets	1
	Has a good knowledge and understanding of IT concepts and	1,3

	architectures, coupled with some knowledge of problem management and the principles and processes of implementing and delivering IT services	
Skills and abilities	Shows aptitude for analysing and managing problems arising from incidents in the operation of information systems, combined with the ability to provide technical solutions	1,3
	Ability to manage and orchestrate Linux server Operating Systems and applications	1,3
	Good technical investigation skills, the ability to research and collate information from a variety of sources into technical reports and recommendations	1
	Demonstrates good communication skills with an aptitude for dealing with users, colleagues and suppliers.	1,3
	Knowledge of programming or scripting: UNIX shell (bash), Perl, Python, etc.	1,3
	Excellent written skills to write technical procedures, reports, system specifications etc.	1
	Ability to schedule your own workload and prioritise your work	1
Training	A willingness to undertake further training and to learn and adopt new procedures as and when required	3
	Ability to assimilate technical information and keep up-to-date in your field	1,3
Qualifications	Degree with relevant IT/Computing content OR relevant professional IT qualifications and/or experience	1

Desirable Criteria

Area	Criteria	Stage
Experience	Experience providing introductory IT training to end users	1,3
	Experience with cluster management, scheduler configuration, software deployment	1,3
	Experience managing a web site	1
	Experience in a customer-facing role	1
	Experience within the HE/FE sector	1
	Experience with change management and configuration management processes	1,3
Skills and abilities	Show the potential to become adept in administering an HPC service, e.g. cluster management, scheduler configuration, software deployment.	1,3
	Practical skills in running a HPC service. For example: node imaging, monitoring, scheduler and resource management, user account management.	1,3
	Use of queueing and scheduling systems such as: Torque, SLURM, Maui and MOAB.	1,3

	Use of automation/orchestration tools such as Ansible, Puppet, Chef, Kubernetes, etc.	1,3
	Knowledge of programming languages such as: C, C++, Fortran, Perl, Python	1,3
	Knowledge of data networking and high-performance interconnects	1,3
	Technical authoring experience and proven documentation track record	1,3
	Knowledge of web server technology such as Apache, PHP and HTML	1
Training	ITIL Foundation training and accreditation	1
	Prince 2 Foundation training and accreditation	1
	Linux certification such as LPIC-1	1
Qualifications	A commitment to equity and diversity with the ability to role model, adhere to and advocate the University's Equity and Diversity policy.	1

Conditions of Service

The position is full-time and open-ended. Salary will be on Management and Specialty Grade 6, £35,116 – £45,413 per annum, at a starting salary to be confirmed on offer of appointment. In addition, this role attracts a market supplement up to £17,000 per annum.

The University is committed to enabling staff to maintain a healthy work-home balance and has several family-friendly policies which can be found [here](#).

The University offers a wide range of employee benefits which can be found [here](#).

We also offer an on-campus nursery with subsidised places, subsidised places at local holiday clubs and a childcare voucher scheme (further details are available at: <http://www.lboro.ac.uk/services/hr/a-z/childcare-information---page.html>)

In addition, the University is supportive, wherever possible, of flexible working arrangements. We also strive to create a culture that supports equity and celebrates diversity throughout the campus. The University holds a Bronze Athena SWAN award which recognises the importance of support for women at all stages of their academic career. For further information on Athena SWAN see <http://www.lboro.ac.uk/services/hr/athena-swan/>