

Post Details		Last Updated: 26/03/2021	
Faculty/Administrative/Service Department	Faculty of Engineering & Physical Sciences (FEPS) Civil and Environmental Engineering (CEE)/Mechanical Engineering Sciences (MES)		
Job Title	Experimental Officer		
Job Family	Technical and Experimental	Job Level	4
Responsible to	Academic Laboratory Leads for Structures & Materials in CEE and MES		
Responsible for (Staff)	n/a		
<p><u>Job Purpose Statement</u></p> <p>The post holder will be responsible for managing the Mechanical Testing Facility (MTF) and ensuring its safe, efficient operation in respect of teaching and research activities; the former includes the running of undergraduate and MSc projects with experimental content, the latter encompasses the use of MTF equipment for the delivery of research grants, contracts and consultancy work.</p> <p>The post holder will play a leading role in the day-to-day running of the MTF and will be responsible for identifying the maintenance needs of the various testing frames within the MTF; liaising with external suppliers and maintenance providers, writing/updating safety documentation and negotiating service contracts as needed; contributing to the development and enhancement of the MTF's capabilities by assisting in the formulation of funding bids.</p> <p>The post holder will participate, as appropriate, in the research activities of the staff and students using the MTF and will be expected to contribute to the research output of the laboratory.</p> <p>The post holder will work closely with other technical staff to ensure the safe and efficient running of laboratories, and to showcase the experimental activities of CEE and MES in relation to external sponsors/clients/student applicants.</p>			
<p><u>Key Responsibilities</u> This document is not designed to be a list of all tasks undertaken but an outline record of the main responsibilities (5 to 8 maximum)</p>			
<ol style="list-style-type: none"> 1. To provide technical troubleshooting and training support for UG/PGT students undertaking project work using MTF equipment. This support to include: technical advice, experimental design, training and assistance to staff and students in the use of laboratory equipment. 2. To demonstrate MTF equipment/techniques to PhD students, staff and other technicians in relation to the delivery of research grants and contracts; to advise on the experimental set-up and possible sensing and data acquisition techniques that can be implemented for the benefit of the MTF user community and its clients. 3. To carry out experiments and develop techniques for mechanical testing and sensing; to keep up to date with advancements in the field and undertake CPD activity to ensure the Faculty is able to make use of cutting-edge protocols and techniques. 4. To coordinate the maintenance and repair of equipment within designated suppliers. This will involve liaison with external contractors and research groups to limit downtime and reduce impact on projects. 5. To provide support for testing/demonstration activities in relation to Open and Applicant Days and summer schools/taster events for CEE and MES. 6. To monitor and maintain a safe working environment in accordance with the latest health and safety legislation. To implement Health & Safety policies in the MTF laboratories; writing SOPs, lab inductions, inventories, equipment records, lab inspections & assisting lab users with documentation (Risk Assessment, CoSHH, etc). 7. Work closely with the Faculty Health & Safety team to establish/maintain safe working practices in the MTF laboratories, contributing positively towards the adoption of best practice models and the growth of the health and safety culture. 8. To work with Heads of Department, Research Directors and others in making recommendations for the purchase of new research equipment to ensure that the laboratories are up-to-date and offering the best service 			

N.B. The above list is not exhaustive.

All staff are expected to:

- Positively support equality of opportunity and equity of treatment to colleagues and students in accordance with the University of Surrey Equal Opportunities Policy.
- Work to achieve the aims of our Environmental Policy and promote awareness to colleagues and students.
- Follow University/departmental policies and working practices in ensuring that no breaches of information security result from their actions.
- Ensure they are aware of and abide by all relevant University Regulations and Policies relevant to the role.
- Undertake such other duties within the scope of the post as may be requested by your Manager.
- Work supportively with colleagues, operating in a collegiate manner at all times.

Help maintain a safe working environment by:

- Attending training in Health and Safety requirements as necessary, both on appointment and as changes in duties and techniques demand.
- Following local codes of safe working practices and the University of Surrey Health and Safety Policy.

Elements of the Role

This section outlines some of the key elements of the role, which allow this role to be evaluated within the University's structure. It provides an overview of what is expected from the post holder in the day-to-day operation of the role.

Planning and Organising

- The post holder will work without close line management supervision but will operate under direction and guidance from the Academic Laboratory Leads for Structures & Materials in CEE and MES and the Technical Services Manager in terms of the nature of work undertaken.
- They will have the freedom to work in a proactive manner and will decide how to achieve the end result, generally based on their judgement, prior experience and technical expertise, within agreed priorities in a dynamic environment.
- The post holder will support projects at all levels with an experimental content undertaken using the MTF equipment; s/he will help with preparation of tests/demonstrations during Open/Taster Days and similar events aimed at promoting the CEE and MES activities at the University.

Problem Solving and Decision Making

- During their day-to-day activities, the post holder is expected to apply knowledge of mechanical testing systems to provide technical support and advice to academic and research staff using the MTF. The appropriate course of action will usually be a matter of choice, influenced by the application of established procedures and precedents and their previous experience and exposure to similar problems. They are required to provide advice to users of the laboratories on routine issues within the context of the role, exercising initiative and judgement gained through prior experience and knowledge. The post holder is expected to execute complex quantitative and qualitative procedures, analyse the findings and to apply their knowledge and expertise to interpret the results from these.
- The post holder is required to provide a troubleshooting service with regards to any experimental problems/issues they face. Problem solving and decision making are therefore integral to many elements of the work undertaken by the post holder. It is expected that the post holder will apply their skills and knowledge in order to make recommendations for improvements to the efficiency and effectiveness of the services provided.
- Errors in judgement or failure to carry out a particular task could result in damaging equipment or risking student and staff personal safety.

Continuous Improvement

- The post holder is expected to contribute to the successful use and development of techniques and methods for delivering research programmes and laboratory related initiatives in CEE and MES. In particular, the postholder will be familiar with data acquisition techniques using different methods for recording, filtering and analysing data recorded during experiments (e.g. Labview, Bluehill, Matlab etc).
- They are also expected to develop new technical skills as appropriate to the developing nature of research within the laboratory, in order that they are able to contribute to the creation of innovative solutions to requirements. This applies to new methods of sensing using optical, digital, acoustical and other methods of measuring strains, deformations, cracks etc in specimens subjected to mechanical loading and environmental degradation. It also applies to the development of testing regimes that involve combination of mechanical and environmental loading, testing under high strain rates, etc.

Accountability

- The post holder is expected to apply their technical and practical knowledge of the required laboratory practices in order to provide timely advice, training and assistance to staff and students regarding the application of techniques and use of equipment for preparation and application of standard and innovative laboratory techniques. This can include designing, setting and undertaking experiments as well as installing data acquisition systems and new laboratory equipment. They are also responsible for maintaining a record of laboratory usage levels and for advising on testing schedules.
- The post holder is responsible for the safety and security of the laboratory space and equipment. This includes monitoring and maintaining a safe working environment within the laboratories, ensuring that the environment and equipment meets Health and Safety requirements and that any procedures, including waste disposal, are carried out in compliance with their associated regulations. They are also responsible for familiarising staff and students with Health and Safety issues and the preparation of Risk/COSHH assessments, as well as keeping records of Health and Safety documentation. Errors in judgement in terms of the advice given, could lead to damaged equipment or personal safety being placed at risk.
- The post holder is expected to respond confidently and in a timely manner to problems/issues such as equipment malfunction and prioritisation. They are responsible for keeping service and maintenance records of the laboratory equipment, tools and instrumentation as well as seek ways to optimise laboratory processes and procedures.
- The post-holder will work largely independently, with some guidance from the Technical Services Manager and the Academic Laboratory Lead for Structures & Materials in CEE and MES. They are expected to exercise discretion and judgement when addressing and resolving daily problems or issues on a wide range of routine matters. They are expected to oversee and supervise technical staff on the maintenance of equipment and the safe operation of systems.

Dimensions of the role

- The post holder will assist academic and research staff and students in matters of mechanical testing, manufacturing methods and maintenance procedures. The post holder will also assist staff and undergraduate students in design and manufacture of apparatus for project-based teaching. This will include working with staff and Level 1, 2, 3 and M students and liaising with suppliers and manufacturers to ensure successful design and construction of parts; it will also involve working with PGR and research staff and liaising with academic supervisors/project investigators to achieve the same and to record/acquire/filter data from experiments
- The post holder will manage a small budget. The post holder will also be responsible for suggesting economical improvements and updating requirements for Maintaining the Estate to the Technical Services Manager.
- The postholder is expected to work collaboratively with technical staff in other laboratories in order to achieve efficiency in procuring/maintaining equipment, to work with common protocols (where appropriate) and to avoid unnecessary duplication of equipment.

Supplementary Information

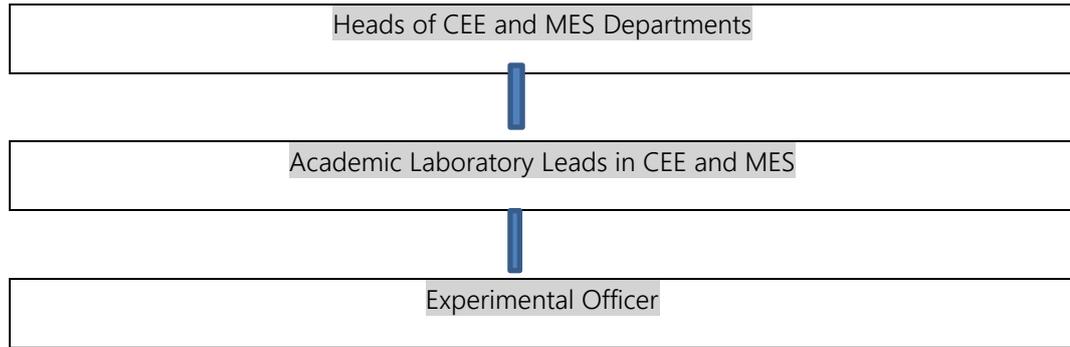
- A thorough knowledge of the hazards associated compressed gases is required in order to minimise the risk of misuse and accidents involving users.

Person Specification This section describes the sum total of knowledge, experience & competence required by the post holder that is necessary for standard acceptable performance in carrying out this role.

Qualifications and Professional Memberships	Essential/ Desirable
Degree, HND, NVQ 4 qualified or equivalent standard in the relevant specialist area plus some relevant work experience. OR Broad practical work experience and mechanical testing knowledge in a relevant technical or scientific role.	E
Postgraduate qualification (Masters or PhD) in relevant specialist area, e.g. experimental mechanics, structural engineering.	D

Technical Competencies (Experience and Knowledge) This section contains the level of competency required to carry out the role (please refer to the competency framework for clarification where needed and the Job Families Booklet).	Essential/ Desirable	Level 1-3
An understanding of relevant Health and Safety requirements and procedures	E	2
Knowledge and experience of maintenance of and fault finding in equipment	E	2
Ability to work independently and with minimal supervision	E	2
Experience of Mechanical Testing processes and use of software for specifying loading regimes on frames with capabilities from 1N to 1MN.	E	3
Knowledge of data acquisition techniques for measuring strain/displacement/cracks in specimens under load	E	3
Proven analytical and problem solving capability	E	2
Experience of data storage, backup and systematic archiving of measurement data and knowledge of appropriate IT systems.	D	n/a
Special Requirements:	Essential/ Desirable	Level 1-3
Driving licence	D	n/a
Core Competencies This section contains the level of competency required to carry out this role. (Please refer to the competency framework for clarification where needed). N/A (not applicable) should be placed, where the competency is not a requirement of the grade.		Level 1-3
Communication		3
Adaptability / Flexibility		2
Customer/Client service and support		3
Planning and Organising		3
Continuous Improvement		2
Problem Solving and Decision Making Skills		2
Management and Developing Performance		2
Creative and Analytical Thinking		2
Influencing, Persuasion and Negotiation Skills		1
Strategic Thinking and Leadership		1
<p>This Job Purpose reflects the core activities of the post. As the Department/Faculty and the post holder develop, there will inevitably be some changes to the duties for which the post is responsible, and possibly to the emphasis of the post itself. The University expects that the post holder will recognise this and will adopt a flexible approach to work. This could include undertaking relevant training where necessary.</p> <p>Should significant changes to the Job Purpose become necessary, the post holder will be consulted and the changes reflected in a revised Job Purpose.</p>		
Organisational/Departmental Information & Key Relationships		
<p><u>Background Information</u></p> <p>The Faculty of Engineering and Physical Sciences is built on the core engineering disciplines of Civil Engineering Aeronautical Engineering, Chemical Engineering, Electronic Engineering and Mechanical Engineering, together with the core scientific disciplines of Computing, Mathematics Physics and Chemistry. Within these fields we enjoy a reputation for excellence in research and teaching.</p>		

Organisational Chart



Relationships

Internal

- The post holder will work closely with the Academic Laboratory Lead for Structures and Materials in CEE and MES
- Regarding the provision of space within the laboratory, liaison with the Faculty Facilities Manager is expected.
- The post holder will work with other members of academic and research staff to ensure that the technical facilities within the MTF are properly established, maintained and enhanced.
- Close liaison with the University and Faculty Health and Safety is essential to ensure the Mechanical Testing Facility is adhering to best practice and current legislation.
- Estates and Facilities – to report faults and overseeing their work within restricted areas and to discuss waste disposal (surplus equipment).
- Other Technical staff within the faculty to discuss waste disposal (hazardous chemicals and surplus equipment)
- Students at all levels (UG/PGT/PGR) undertaking project/contract work with an experimental content.

External

- External companies and collaborating institutions
- External contractors and service engineers