**Job Description** – Project Officer (Analytical EM & Microprobe)

# **About the Role**

We seek an enthusiastic microscopist to join our Electron Microscopy Core Facility within the Faculty of STEM, supporting internal and external research projects and commercial work. We seek an individual who can enhance the unit's capabilities in quantitative electron beam analysis of geological samples, particularly emphasising the quantitative analysis of major, minor, and trace elements in minerals, including meteorites. In this role, you will collaborate with leading research groups, including Planetary and Space Sciences, Astrobiology, and Dynamic Earth, in pursuit of exploration of the physical, chemical, and biological processes that shape our Solar System. The role holder will work closely with facility staff and provide advanced technical support in scanning electron microscopy (SEM) and microprobe analysis, aiding in investigating geological and extraterrestrial samples.

By joining our team, you will be at the forefront of pioneering research from deep Earth geological processes to the quest for life in the cosmos. Your contributions will support groundbreaking discoveries in geological and archaeological sciences, significantly impacting our understanding of Earth and space.

We seek a motivated individual with a strong background in Geology or Mineralogy and a passion for microscopy. If you are excited about working in a dynamic and collaborative environment, we encourage you to apply.

# **Key Responsibilities**

Operational:

1. Proficient operation of all SEMs and microprobe within the facility.
2. Quantitative micro-elemental analysis using suitable X-ray detectors (EDS, WDS) as applicable for users.
3. Development of quantitative analytical protocols for major-, minor- and trace-element analysis in engineering and geological applications.
4. Ensure the smooth running of scanning electron microscopes and the electron microprobe laboratories, and ensure the equipment is maintained and correctly aligned.
	1. Performs routine operations, maintenance, and troubleshooting of technical issues with analytical equipment and coordinates with external service providers when necessary.
	2. Regularly inspect analytical detectors and associated equipment and perform routine maintenance.
	3. Manage electron microprobe and associated work.
	4. Support the electron microscopy activities and act as a single point of contact for all activities related to geological and earth science.
	5. Write and review standard operating procedures and ensure safe and efficient operation of the electron microscopy suite.
	6. Support other staff members in the daily maintenance of electron microscopes and ancillary equipment such as coating and drying apparatus, pumps, water chillers and UPS systems.
5. Sample preparation for application in Geological and Material Sciences.
6. Procure service contracts, lab supplies and consumables.
7. Ensure proper communication flow and liaison with engineers, contractors, gas cylinder delivery, and on-site lab visitors.
8. Undertake industrial clients' work; liaise, coordinate and collaborate (where appropriate) with other university staff involved; write reports.
9. Present results at local meetings and national conferences.
10. Provide experienced technical assistance or training to research staff and students in:
	1. Sample preparation
	2. SEM and microprobe imaging and analysis
	3. Data recording and processing.
11. Maintain accurate laboratory records in accordance with the Faculty policy.
12. Demonstrate equipment and techniques to work experience students, parties of school students and members of the public.
13. Support areas of teaching as appropriate
14. Daily tasks as requested by the Facility Manager.
15. Ensure that Good Laboratory Practice procedures comply with current Health and Safety legislation.

General:

* Understand and commit to promoting the University's policies and procedures to support and encourage Equality & Diversity.
* To maintain confidentiality of information in line with data protection requirements and University policy.
* To comply with health and safety requirements, including being aware of personal responsibilities to maintain a safe working environment.
* To contribute to the University's agenda for social responsibility, including sustainability.
* To demonstrate a strong commitment to the principles and practice of equality and diversity.

# **Skills and Experience**

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| **Criteria** | **Essential** | **Desirable** |
| 1. | Hold a PhD (or be close to completion) or have equivalent experience in Geology, Mineralogy, or any other relevant discipline. | × |  |
| 2. | Experience in the operation of Scanning Electron Microscopes (SEM), sample preparation for SEM quantitative analysis and interpretation of results. | × |  |
| 3. | Experience using micro-analytical software combined with EDS and WDS for standardised, quantitative analysis of element abundance, including interpretation of results. | × |  |
| 4. | Experience in Electron Backscatter Diffraction (EBSD). |  | × |
| 5. | A solid understanding of mineral stoichiometry and the use of mineral stoichiometry in quality control of micro-analytical data. | × |  |
| 6. | A solid understanding of the principles of electron beam analysis of minerals using EDS and WDS. | × |  |
| 7. | Expertise in technical aspects of Electron Microscopy. | × |  |
| 8. | Effective communication skills, capable of conveying technical concepts clearly to both experts and non-experts. | × |  |
| 9. | Demonstrated experience in working and communicating collaboratively within a team environment. | × |  |
| 10. | Strong organisational skills, with the ability to prioritise tasks and manage workload efficiently. | × |  |
| 11. | Ability to work independently and take initiative in problem-solving and project management. | × |  |
| 12. | Demonstrated capability to actively help plan, improve, and move projects forward, effectively sharing findings. | × |  |
| 13. | Relevant research experience, as evidenced by publications in accredited journals, was a direct result of the applicant's own work. | × |  |
| 14. | Knowledge of relevant Health and Safety regulation, Standard Operating Procedures and risk assessments including COSHH risk assessments. | × |  |
| 15. | Proficiency in IT skills: familiarity with Windows and using Office or equivalent software. | × |  |
| 16. | Enthusiasm for Electron Microscopy and a commitment to ongoing professional development in this field. | × |  |

If you would like further details about the role before making an application, then please email your query to Resourcing-Hub@open.ac.uk quoting the reference number and job title or contact Dr Igor Kraev (igor.kraev@open.ac.uk).

# **About the Unit**

***Electron Microscopy Suite***

The Electron Microscopy Suite at Open University, located on our Milton Keynes campus, is a core facility supporting the four schools within the STEM faculty:

* School of Environment, Earth & Ecosystem Sciences
* School of Physical Sciences
* School of Engineering & Innovation
* School of Life, Health & Chemical Sciences

Our team of experts brings a wide range of scientific knowledge to our collaborative environment. The following equipment is currently available:

* Microprobe (EPMA) – Cameca SX100, equipped with 5 wavelength dispersive X-ray spectrometers (WDS), one conventional energy-dispersive X-ray spectroscopy detector (EDS) and light optics for polarised and cross-polarised transmitted or reflected light imaging.
* Scanning electron microscope (SEM) – Tescan CLARA FEG SEM, equipped with back scattered electron (BSE) detector, conventional EDS, WDS and electron backscatter diffraction detector (EBSD).
* Focused ion beam scanning electron microscope (FIB-SEM) – Zeiss Crossbeam 550, equipped with Gallium FIB source, Platinum and Carbon gas injection systems, BSE detector, conventional and high-resolution EDS detectors, EBSD detector, STEM stage and manipulator for TEM lamella lift-out.
* Transmission electron microscope (TEM) - JEOL JEM1400, equipped with GATAN Rio16 camera.
* High-resolution TEM – JEOL JEM2100, equipped with GATAN Orius SC1000 camera with STEM and EDS detectors.

Also, there is additional equipment for sample preparation of geological, biological, or material science samples.

We partner with research institutions across the UK, providing advanced microscopy services and consultancy to support pioneering research. Additionally, we work with industrial clients by offering specialised support to help them achieve their objectives.

We are dedicated to fostering innovation and discovery while promoting sustainability. Our Green Level Certification demonstrates our commitment to environmentally responsible practices from the My Green Lab organisation.

Join us in advancing science and technology sustainably and contribute to the future of research across multiple disciplines.

More on our website <https://emsuite.stem.open.ac.uk/>

Follow us on Twitter [@OU\_EM\_Suite](https://twitter.com/OU_EM_Suite) and Instagram [@ouemsuite](https://www.instagram.com/ouemsuite/)

***STEM Faculty - Faculty of Science, Technology, Engineering & Mathematics***

**"We aspire to be world leaders in inclusive, innovative and high-impact STEM teaching and research, equipping learners, employers and society with the capabilities to meet tomorrow's challenges."**

The Faculty of STEM consists of 2500 staff, including 1,800 Associate Lecturers. The Faculty delivers over 185 modules across the undergraduate and postgraduate curriculum, supporting nearly 19,000 students (full-time equivalents), which is 29% of the total OU.

The Faculty generates more research income (circa £17M) than any other Faculty in the University, supported by a comprehensive laboratory infrastructure.

We are proud of our distinctive values and capabilities underpinning our aspiration:

*We are inclusive :*

* We transform people's lives, ensuring STEM education is openly accessible to many thousands of students from diverse backgrounds – our students express high satisfaction with their study experience.
* We engage the public in exciting citizen science and engineering, including through free open educational resources, multi-platform broadcasting, outreach to inspire the next generation and with programmes to encourage more women into STEM.

*We are highly innovative :*

* We are at the forefront of innovative developments in teaching practical science and engineering at a distance, through simulated and remote access laboratories and practical experimentation.
* Our high quality teaching and curriculum are informed by world-leading research, strong links with professional bodies and communities of practitioners, as well as by scholarship focused on continuously improving our STEM pedagogy.

*We deliver significant social and economic impact :*

* We provide STEM higher education at a scale and reach unsurpassed in the UK, with a sizeable international reach and further growth potential.
* We inject transferable STEM skills and knowledge direct into the workplace for immediate employee and employer benefit, as students combine study while working.
* The employability value of our courses is underpinned by accreditation from leading STEM Professional Bodies and Learned Societies, as well as partnerships and sponsorship with leading employers.
* Our high quality, applied and academically relevant teaching and research addresses real-world issues, delivering impact for industry and society, including addressing pressing STEM skill-shortages across the UK.

*The Open University is committed to equality, diversity and inclusion which is reflected in our mission to be open to people, places, methods and ideas. We aim to foster a diverse and inclusive environment so that all in our OU community can reach their potential.  We recognise that different people bring different perspectives, ideas, knowledge, and culture, and that this difference brings great strength.  We strive to recruit, retain and develop the careers of a diverse pool of students and staff, and particularly encourage applications from all underrepresented groups. We also aspire to make The Open University a supportive workplace for all through our policies, services and staff networks.*

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