Senior Project Engineer in Powder Processing Technologies

Department: Strathclyde Institute of Pharmacy and Biomedical Sciences (www.strath.ac.uk/science/strathclydeinstituteofpharmacybiomedicalsciences/)
Faculty: Faculty of Science (www.strath.ac.uk/science/)
Staff Category: Technical Services

Report To: Head of Institute via Dr Daniel Markl
Grade: 7
Salary Range: £36,024 – £44,263
Contract Type: Fixed Term (15 months)
FTE: 1 (35 hours/week)
Closing Date: 23/10/2023

Job Advert

CMAC is a world leading medicines manufacturing research centre that hosts a portfolio of collaborative research programmes aimed to transform the development and manufacture of medicines (www.cmac.ac.uk). Building on our long standing partnerships with a wide range of pharmaceutical manufacturers, we are excited to announce a new process technology development and translation project with CMAC’s industry partners (e.g. Pfizer).

The manufacturing of medicines utilises a range of processes where various materials are combined with the drug substance to deliver a high quality, consistent and stable drug product. A consistent feed of powdered materials into processes, such as crystallization, blending or granulation, is of paramount importance as any variations in the feed stream directly impact quality attributes of the final drug product. Rapidly changing healthcare models require transformative technologies that enable flexible, cost-effective manufacture of medicines to meet patient demands. The need to produce lifesaving medicines for small patient populations, manufacture low-dosage products with high-potency drugs for targeted cancer treatments, and just-the-right quantity of clinical material for small-scale patient studies require feeding processes capable of continuously delivering small amounts of material. Current technologies, such as screw feeders and vibrating feeders, cannot achieve the accuracy and flow rates needed for manufacturing future drug products in a continuous manner.

CMAC has developed an innovative micro-feeder that is able to accurately feed low quantities of pharmaceutical powders – equivalent to adding less than a spoonful of sugar uniformly to coffee over 30 minutes. The technology meets a clear need reaffirmed by end-users in CMAC’s network of Tier 1 pharma partners. This project will advance the current proof-of-concept prototype (TRL 3) into a working system (TRL 6) with industrial operational relevance ready for commercialisation through advancing the design, equipping it with an advanced control system, and showcasing and disseminating the value of the innovative micro-feeder.

We are currently seeking applicants for a Senior Project Engineer based at the University of Strathclyde. This is a unique opportunity to help realise the next generation of a micro-scale pharmaceutical manufacturing technology with exceptional potential to have real impact in the industry. You will have a Degree in a relevant subject (Mechanical Engineering, Chemical Engineering, Chemistry, Physics, Pharmaceutical Sciences or related discipline) with appropriate experience in designing, developing and/or operating process technologies.

You must have excellent verbal and written communications skills and be able to work as a member of a research team. You should be able to manage your own activities and prioritise your own workload within agreed objectives to ensure that all activities are completed to deadlines.
Job Description

Brief Outline of Job:
To advance an innovative micro-feeder technology for high-accuracy feeding of pharmaceutical materials to enable the translation of this technology to the pharmaceutical industry. This ambitious aim will be realised by working closely with the entire project team including experts CMAC Tier 1 industry partners.

Main Activities/Responsibilities:

1. Design, develop and fabricate (3D printing) new and/or adapted components for the micro-feeder technology.
2. Develop and implement a control system for improving the micro-feeder performance for various materials.
3. Demonstrate the micro-feeder for a range of pharmaceutical and industrially-relevant materials.
4. Perform raw material characterisation (density, particle size, flowability) of materials used for trials on the micro-feeder.
5. Coordinate monthly industry meetings with industrialists. This includes the preparation of an agenda, collection and preparation of slides for the meeting, and preparation of meeting notes and minutes.
6. Work closely with other researchers, technical staff, PhD students and industry partner subject matter experts.
7. Engage and support with colleagues across CMAC in the design, development and fabrication of process technologies.
8. Provide regular reports on progress to project team to ensure the timely delivery of high quality work with impact.
9. Disseminate results emerging from research in an effective and timely manner and submit high-quality publications to peer reviewed journals.
10. Develop and participate in networks to foster research collaborations, inform the development of the research objectives and identify potential sources of future funding.
11. Engage in continuous professional development.

Person Specification

Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Degree in a relevant subject (Mechanical Engineering, Chemical Engineering, Chemistry, Physics, Pharmaceutical Sciences or related discipline)

D1 Membership of relevant Chartered/professional body

Experience

E2 Sufficient breadth or depth of specialist knowledge of design, development and/or operation of process technologies

E3 Knowledge of computer-aided design software for the design of process components

D2 Knowledge of commercial feeder technologies used for pharmaceutical materials

D3 Knowledge of raw material properties and characterisation of pharmaceutical materials

D4 Knowledge in pharmaceutical sciences and/or manufacturing

Job Related Skills and Achievements

E4 Ability to plan and organise workload

E5 Ability to work with partners outwith the University and promote this research

E6 Excellent organisational skills to plan, execute and report on research project

E7 Assist in the supervision of student projects

E8 Excellent computer literacy
**Personal Attributes**

- E9 Ability to work within a team environment
- E10 Excellent written and oral communication skills
- E11 Ability to work to deadlines with accuracy and precision
- E12 Proactive and able to use initiative
- D5 Ability to influence senior colleagues to implement change

**Other Relevant Factors**

- E13 Ability to balance work and time between conflicting demands

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**Application Procedure**

Applicants are required to complete an application form including the name of three referees who will be contacted without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

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**Other Information**

Further information on the application process and working at Strathclyde can be found on our website (http://www.strath.ac.uk/hr/workforus).

Informal enquiries about the post can be directed to Dr Daniel Markl, PI (daniel.markl@strath.ac.uk).

**Conditions of Employment**

Conditions of employment relating to the Technical Services staff category can be found at: Conditions of Employment.

**Rewards and Benefits**

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found here.

**Probation**

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

**Pension**

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from Payroll and Pensions.

**Relocation**

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

**Interviews**

Formal interviews for this post will take place in November 2023.

**Equality and Diversity**

The University of Strathclyde is a socially progressive institution that strives to ensure equality of opportunity and celebrates the diversity of its student and staff community. Strathclyde is people-oriented and collaborative, offering a supportive and flexible working culture with a deep commitment to our equality, diversity and inclusion charters, initiatives, groups and networks.

We strongly encourage applications from Black, Asian and minority ethnicity, women, LGBT+, and disabled candidates and candidates from lower socio-economic groups and care-experienced backgrounds.

**University Values**

The University’s Values capture what we’re all about: who we are, what we believe in and what we stand for. Our Values have been derived from how we act and how we expect to be treated as part of Strathclyde.
Conditions of Employment
Technical Services Staff Grades 6 to 8

1. GENERAL CONDITIONS
Members of staff are subject to the Charter and Statutes and the Ordinances and Regulations of the University, published in the Calendar, and to any amendments or additions thereto approved by the University Court and, in the case of the Charter and Statutes, the Privy Council. Staff are also expected to familiarise themselves with, and adhere to, general University policies and procedures, as published on University web pages.

The University Court recognises UNITE as the sole body with which it will negotiate and consult on all collective issues concerned with the terms and conditions of employment of Technical Services staff. Such terms and conditions may be varied by the University Court after negotiation and consultation with UNITE.

Each member of staff is responsible for the proper performance of allocated duties to the person or persons specified in the member of staff’s letter of appointment and any accompanying papers. Members of staff may not accept outside paid work including personal consultancies without the permission of the University, which will not be unreasonably withheld.

The University is committed to ensuring that its business is conducted in an open and transparent manner and will take all appropriate steps to address risks of bribery or corruption. Members of staff are required at all times to act honestly and with integrity and to safeguard the resources for which they are responsible. The University has in place a robust Public Interest Disclosure (Whistleblowing) Policy to enable concerns to be brought to its attention. This is available at www.strath.ac.uk/publicinterestdisclosure. Other relevant policies, e.g. Fraud Prevention and Conflicts of Interests, can also be found on the University’s website.

Any member of staff may at any time be exposed to commercially sensitive information, information related to potentially valuable intellectual property or information which may otherwise be of a confidential nature. This information, which could be found anywhere in the University, may be written or disclosed orally, can include information of a technical or commercial nature, and may be owned by the University or by third parties. The University requires all employees to keep any such information confidential in the first instance and not disclose, publish or otherwise disseminate it without prior consent of the University. Such confidentiality obligations are commonplace and in exceptional circumstances may be owed by all members of staff.

The University operates probationary periods for new staff, the duration of which will be specified in individual letters of appointment. The normal probation period for posts in this staff category is 9 months for grades 6 and 7 and 12 months for grade 8. Further guidance on probationary procedures is published at http://www.strath.ac.uk/hr.

Further information on the terms and conditions specified in this document and other staffing policies and procedures can also be found at www.strath.ac.uk/hr.

2. SALARY
Appointments are made at an appropriate salary point on the University’s grading structure, with initial placing determined according to qualifications and experience. Increments are paid to staff on 1 August each year or at the earliest time that the employee has a minimum of 6 full months of service at the appointed grade, allowing progression to the next point on the salary scale until the top guaranteed point of the scale is reached.

Arrangements in relation to overtime, additional hours, non-standards and on-call working are published at www.strath.ac.uk/hr.

Salaries are paid directly to staff members nominated bank account, normally on the second last working day of the month.

3. HOURS OF WORK
The normal working week is 35 hours. Unless otherwise indicated in an individual’s letter of appointment, the normal hours are 9.00am to 5.00pm Monday to Friday with a one hour lunch break. Certain members of staff may be required to work some hours outwith this normal pattern and this should be agreed locally. Nonetheless, operational requirements vary significantly across the University and therefore, where local circumstances dictate, reasonable variation may be adopted dependant upon operational needs. In such situations your Head of Department/School/equivalent will discuss with you the alternative arrangements that will apply.

Overtime rates do not apply to staff grades 6 and above. Where a Head of Department/School/equivalent requests additional work, above the standard working week to meet the particular requirements of the Department, equivalent time off in lieu may be granted by prior agreement.

4. HOLIDAYS
Annual leave entitlement is 31 days per year to be taken by agreement with the line manager. For staff members working on a part-time basis, holidays will be calculated on a pro-rata basis.

In addition to annual leave there is an entitlement to eleven public holidays per year which should be taken on days that the University is closed for this purpose. The University presently closes for four additional days over the Christmas and New Year period. These additional days count against the annual leave entitlement.

For staff members working on a part-time basis, public holiday entitlement will be calculated on a pro-rata basis.

Annual leave and public holiday entitlements should be taken in the leave year to which they relate. Up to five days leave can be carried forward into the new leave year subject to line management agreement. In exceptional circumstances, Heads of Department/School/equivalent may approve carry forward of accrued annual leave in excess of five days.

The University’s expectation is that staff take all accrued holidays prior to their termination date. If staff have exceeded their entitlement the University will deduct an equivalent number of days pay from final salary payments.
5. SICKNESS ABSENCE
During any period of absence through illness or injury provided the appropriate notification and certification procedures have been followed the University will pay a member of staff (having taken account of the aggregate of all periods of absence due to illness during the twelve months immediately preceding the first day of the current absence) as follows:

<table>
<thead>
<tr>
<th>Period of Continuous Employment at start of absence from work</th>
<th>Full Pay</th>
<th>Half Pay</th>
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<tbody>
<tr>
<td>Less than 1 year</td>
<td>1 month</td>
<td>1 month</td>
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<tr>
<td>1 year but less than 2 years</td>
<td>2 months</td>
<td>2 months</td>
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<tr>
<td>2 years but less than 3 years</td>
<td>4 months</td>
<td>4 months</td>
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<tr>
<td>3 years but less than 5 years</td>
<td>5 months</td>
<td>5 months</td>
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<tr>
<td>5 years or more</td>
<td>6 months</td>
<td>6 months</td>
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In order to manage the University’s sick pay scheme the University requires to maintain sickness absence records on individual members of staff. When making payments after the expiry of statutory sick pay the University will deduct an amount equivalent to any benefit normally payable by the Department of Work and Pensions. For full details on the general University policy in this area please refer to the Sickness Absence Management Policy at [www.strath.ac.uk/staff/policies/hr](http://www.strath.ac.uk/staff/policies/hr).

6. PENSIONS
If you are under age 75 at the date your appointment commences you will automatically become a member of the pension scheme operated by the University — the Universities Superannuation Scheme (USS). You will be admitted to the career revalued benefits scheme called the USS Retirement Income Builder; the contribution rate that currently applies is 9.8% of pensionable salary. A threshold applies to the maximum salary that counts towards the USS Retirement Income Builder. The current threshold from 1 April 2023 is £41,004 per year. Contributions based on salary above the monthly equivalent rate of the threshold are paid to the defined contribution section of the scheme called the USS Investment Builder. Please use the following link to access information, including the USS Member Guide: [https://www.uss.co.uk/for-members/youre-a-new-joiner](https://www.uss.co.uk/for-members/youre-a-new-joiner). The scheme booklet is called ‘Your Guide to the Universities Superannuation Scheme’.

The University operates a salary exchange arrangement, Pensions Plus, for members of the USS. Pensions Plus enables pension contributions to be made in a manner so that both employees and the University can benefit from available National Insurance Contribution savings. You will be automatically included in Pensions Plus, provided it does not adversely affect your take-home pay or your ability to claim certain state benefits. If your earnings fall below the Pension Plus pay protection limit you will be opted out of Pension Plus. This will not affect your membership of the USS.

New members of staff may opt out of USS within three months of taking up appointment and will then be treated as if they had never been a member of the scheme. After three months members of staff who wish to withdraw from USS during their employment will be required to give a minimum of 28 days’ notice in writing to the University. Any member of staff who wishes to opt out should contact the Pensions Section, Finance, in the first instance (pensions@strath.ac.uk). Please note that if you are a member of Pensions Plus and withdraw from USS with less than two years of membership, or cease employment with the University and have less than two years of USS membership, the option of a refund of pension contributions will not be available to you. Instead, USS must provide you with a pension benefit that is payable from your Normal Pension Age. Regardless of whether you participate in Pensions Plus, if you are a member of the pension scheme for two years or more you are not entitled to a refund of pension contributions on leaving the scheme, you will be entitled to a pension benefit.

The University reserves the right to alter or withdraw Pensions Plus as it sees fit or as required to comply with legislative changes. Withdrawal or amendment of Pensions Plus will not affect your membership of USS. If you do not wish to participate in Pensions Plus but wish to remain in the pension scheme please contact the Pensions Team who will provide you with a non-participation form.

Information regarding pension scheme membership can be found on the Pensions pages of the University’s website. Full information regarding USS can be found on the USS website — [www.uss.co.uk](http://www.uss.co.uk).

7. PLACE OF WORK AND RESIDENCE
Members of staff will be based on the John Anderson Campus, unless otherwise stated in the letter of appointment. The Department/School in which the post is initially placed will be specified in the letter of appointment although there will be an expectation to work at such other places as required in the course of employment.

If the need arises for members of staff to work outside the UK for a period (or periods) of more than one month then such arrangements will be subject to mutual agreement. Members of staff would then be provided with a statement in advance setting out the terms covering such periods of employment.

The University does not normally place specific restrictions upon the place of residence of members of staff. All staff are, however, expected to reside in a location which is compatible with the satisfactory fulfilment of all the duties associated with their appointment.

8. DISCIPLINARY AND GRIEVANCE PROCEDURES
Further information on the University’s disciplinary and grievance procedure can also be found at [www.strath.ac.uk/policies/hr](http://www.strath.ac.uk/policies/hr) or on request from Human Resources.

9. NOTICE AND TERMINATION
The employment of a member of staff is terminable by at least 3 months’ notice, in writing, on either side, except during the probationary period when notice is one month. If notice is being given by a member of staff earlier release may be granted if this can be arranged without detriment to the work of the department or area. If the appointment is for a fixed term period it will expire at the end of the period without the necessity for notice. Fixed term contracts may be terminated by either party short of the expiry date by the serving of one month’s notice in writing. The University is not obliged to continue a fixed term appointment beyond the specified employment period.

Revised April 2023