

Process engineer for microalgae manufacture (KTP Associate)

Department	Chemical and Process Engineering (www.strath.ac.uk/engineering/chemicalprocessengineering/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	KTP	Reference No	351059
Reports To	Dr Yi-chieh Chen (Academic Supervisor) & Dr Rocky Kindt (Company Supervisor)	Grade:	RS79
Salary Range:	Up to £34k per annum plus £5k training and development budget	Contract Type:	Fixed Term (30 months)
FTE	1	Closing Date	07/03/2021

Job Advert

The Department of Chemical and Process Engineering, in partnership with Scottish Bioenergy Cooperative Ventures Limited (trading as ScotBio; www.scotbio.com), is seeking to appoint a Knowledge Transfer Partnership (KTP) Associate to optimise the manufacture of microalgae using Process Analytic Technologies and Machine Learning.

The role of KTP Associate bridges the worlds of academia and industry, providing a unique opportunity for an enterprising individual to invigorate their career with applied research using cutting edge technologies. ScotBio manufactures high quality food ingredients from microalgae. The aim of the project is to monitor and model the manufacturing process using Process Analytic Technologies and Machine Learning, and to optimise the process in terms of yield and quality. The collaboration between the University and Company enables the best engineering science to be applied to a modern manufacturing process, embedding knowledge and skills to ensure continued industrial innovation grounded in academic excellence.

The successful candidate will be employed by the University of Strathclyde and based at ScotBio, working directly with the Chief Technology Officer as part of the R&D team while liaising with production engineers. The project involves collaborating with the academic partners at the University to design and implement the process monitoring system that enables optimisation. This includes: assessing available technologies and how they are best deployed in the complex biochemical manufacturing process; processing and modelling of manufacturing or time series data to optimise and control the process; developing and implementing a strategy to fuse multi-sensor data; assessing and implementing Machine Learning technologies to allow continuous process improvements. Learning from the project will also be transferred and embedded within the company by providing technical support to the senior management, and training to the R&D team and production engineers.

ScotBio develops and utilizes bioreactor technologies for the commercial scale production of high value biochemicals and natural products from microalgae. Driven by growing consumer demand for clean and sustainable ingredients, the company seeks to expand its manufacturing capabilities to secure a leading position in this sector. The company has its corporate HQ and R&D facility located in central Scotland, and a manufacturing site in Lockerbie for cultivating microalgae on a scale of tens of thousands of litres. ScotBio has worked closely with leading UK academic institutions since its inception, with a portfolio of cutting-edge projects to overcome technical challenges, generate scientific insights, and promote the development of new talent. Indeed, many of ScotBio's technical staff joined the company following highly successful industrial internships with the company, including from past KTP projects. Successful candidates will be joining a growing team of ambitious and talented professionals.

KTP associates are offered an exceptional opportunity to lead and manage their own unique project, to apply and demonstrate their skills and expertise to real industrial challenges whilst benefitting from the combined support and resources of the two partnering organisations.

The position offers generous opportunities for professional development including via formal qualifications and dedicated mentoring from industry and academia. Associates manage a personal training budget and have access to a variety of KTP training modules.

The project is part of the Knowledge Transfer Partnership (KTP) programme that aims to help businesses improve their competitiveness and productivity through better use of knowledge, technology and skills that reside within the UK knowledge base. Successful Knowledge Transfer Partnership projects are funded by UK Research and Innovation through Innovate UK and are part of the government's Industrial Strategy. To find out how KTP works and the vital role you will play if you successfully secure a KTP Associate position please visit: www.ktpws.org.uk. There are over 200 vacancies currently available at www.ktp-uk.org/graduates or search 'KTP jobs'.

Job Description

Brief Outline of Job:

Supported by the academic team at the University of Strathclyde and the R&D team at ScotBio, the KTP Associate will deliver a PAT system for optimisation of the manufacturing process. This system will provide continuous process improvements utilising Machine Learning. The technologies and understanding will be disseminated throughout ScotBio.

Main Activities/Responsibilities:

1.	Identify opportunities for Process Analytical Technologies and Machine Learning to transform ScotBio practices.
2.	Identify key process parameters, critical quality attributes and assess current Process Analytical Technology.
3.	Develop a bespoke process model through systematic experimentation.
4.	Apply required PAT tools and models for optimising biomass production processes.
5.	Develop and document Machine Learning algorithms for manufacturing process control and improvement.
6.	Train ScotBio personnel in the applications of PAT and Machine Learning technologies.
7.	Assess the potential for Machine Learning technologies to further improve and optimise ScotBio processes.
8.	Ensure learning from the industrial context is embedded in Strathclyde teaching.
9.	Completion of KTP Associate Final Report by the required deadline.
10.	Lead the preparation of scientific manuscripts detailing findings where appropriate.

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 First degree in a relevant subject (Chemical Engineering, Data Science, Electrical Engineering, Applied Chemistry and Statistics, or related discipline).

D1 PhD or equivalent industrial experience in a relevant subject area (Chemical or Process Engineering, Data Science or Analytics, Electrical Engineering, Applied Chemistry and Statistics, or related discipline).

D2 Membership of relevant chartered or professional body.

Experience

E2 Chemical engineering discipline-specific skills including the understanding of process engineering in terms of chemical engineering fundamentals, and measurement technologies.

E3 Knowledge of biochemical reactor engineering.

D3 Experience in process modelling using chemical engineering fundamentals, and process analytical technologies.

D4 Experience in development or implementation of process monitoring and analytical technology.

D5 Experience of industrial project work in the biotechnology sector.

D6 Design of experiments to optimise information content.

Job Related Skills and Achievements

E4 Excellent analytical and problem-solving skills.

E5 Excellent skills in developing and implementing modelling strategies using data from multiple sources.

E6 Excellent organisation skills.

D7 Awareness of the broader commercial drivers for the adoption of machine learning in the process industries.

Personal Attributes

E7 Excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences.

E8 Highly focussed on core objectives and target driven with the ability to work to tight deadlines and demonstrate prioritisation of workload.

E9 Proactive and able to use initiative.

E10 Ability to work within a multi-disciplinary team.

E11 Willingness to acquire business skills and strategic thinking.

Other Relevant Factors

E12 The willingness to travel between the ScotBio sites and Strathclyde is essential.

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted before interview 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.

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 Yi-chieh Chen, Lecturer (yichieh.chen@strath.ac.uk / 0141 574 5304).

Conditions of Employment

Conditions of employment relating to the KTP Associate 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 6 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.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing gender equality in academia across all academic disciplines and professional and support functions.

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.

