



Ultrasonic Inspection R&D Engineer: (KTP Associate)

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| Department | Electronic and Electrical Engineering (www.strath.ac.uk/engineering/electronicalelectricalengineering/) | | |
| Faculty | Faculty of Engineering (www.strath.ac.uk/engineering/) | | |
| Staff Category | Knowledge Transfer Partnership (KTP) | Reference No | 619536 |
| Reports To | Dr Ehsan Mohseni, (Knowledge Base Supervisor); Walker Murray (Company Supervisor) | Grade | RS79 |
| Salary Range | Up to £44,000 | Contract Type | 30 months |
| FTE | 1 (37 hours/week) | Closing Date | 31/01/2025 |
| Holidays | 30 days + 4 statutory days As per the company holidays. | Company On Site Facilities | Free parking, Kitchen, close to food outlets. |
| Pensions | Contributory pension scheme available to all staff including generous employer contribution. | | |
| Training | KTP Associates spend 10% of their time on training and personal development including attendance at 2 compulsory Residential Modules. Professional Development with Organisational and Staff Development Unit (OSDU) plus external training if required. | | |

Job Advert

The Department of Electronic and Electrical Engineering in partnership with National Oilwell Varco (NOV) UK Limited (<https://www.nov.com/>) are seeking to appoint a Phased Array Ultrasonic Research Engineer to develop and introduce advanced ultrasonic inspection technology across complex NOV components. The post will be predominantly based at NOV's site in Forfar, Angus, Scotland with visits to the University of Strathclyde campus and NOV Montrose.

NOV is a worldwide provider of equipment and components used in net-zero drilling and production operations, oilfield services, and supply chain integration services to the upstream petrochemical industry. The company operates in more than 500 locations across six continents through three reporting segments: Rig Technologies, Wellbore Technologies, and Completion & Production Solutions.

The NOV team in Forfar is responsible for on-destructive evaluation (NDE) technology and procedures for drilling equipment across the globe. NOV's components are large, often metres, in span and extremely heavy, which makes it practically impossible to have standard reference blocks of the same size as the original equipment. Therefore, the company is seeking to recruit a Phased Array Ultrasonic Research Engineer to develop innovative calibration pieces and procedures to transform the reliability of NDE processes and improve safety of the components in operation, minimising the risks of failure and shutdown.

The project is part of the Knowledge Transfer Partnership (KTP) programme that aims to help businesses to innovate and grow by working with UK universities. 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

The position offers the KTP Associate the following benefits:

- opportunity of a permanent position with the company; 70% of host companies make a permanent job offer to their Associate at the end of the project
- a planned programme of training courses, including a £5k personal development budget
- a challenging and rewarding job with real responsibility
- mentoring from experienced industrial and academic supervisors
- the support and resources of the University of Strathclyde
- the possibility of registering for a higher degree with the University
- the potential for good career development with the company at the end of the scheme
- developing and proving expertise in the prospering field of energy
- the opportunity to make important and tangible improvements in an ambitious and dynamic company
- the opportunity to apply your academic knowledge to a real-life challenge

The objective of this project is to conduct phased array ultrasonic studies through modelling and experiments on a range of NOV's complex components to develop a phased array ultrasound testing procedure for such components. This will include the design, manufacturing and validation of bespoke sensitivity and calibration pieces. The main goal is to embed the knowledge and experience of inspection procedure design and development within the company. The associate will work with NOV and Strathclyde to develop a new ultrasonic inspection procedure and standardise it for selected components while training NOV team to develop this capability for future cases.

To be considered for the role you will be expected to have at least PhD/MSc degree in Electrical, Electronic, Mechanical or Materials Engineering, Physics or equivalent. The successful candidate should have experience in phased array ultrasonic testing and the related equipment. For a full list of role requirements please see the person specification below.

Job Description

Brief Outline of Job:

Working with colleagues at NOV and academics at the University of Strathclyde the associate will undertake a 2.5 year program of work that will look to study phased array inspection of large complex NOV components and develop optimised inspection procedures for maximum inspection reliability. Areas to consider include:

- Improved phased array ultrasonic testing parameters to maximise defect detection probability for selected complex geometries.
- Design, manufacture and validation of small scale phased array ultrasonic calibration pieces through simulations and experiments compliant with industrial standards.
- Developing know-how for phased array ultrasonic testing procedures within NOV, lead standardising the procedures, and training NOV NDT team's personnel on inspection procedure development.

The associate will design, develop sensitivity/calibration prototypes, and test them using NOV/ Strathclyde's impressive suite of test facilities/equipment.

The Associate will also contribute to the knowledge base through training workshops and reports which will be the basis for journal publications. Consistent reference to literature and use of academic and industry expertise will ensure best practice and successful delivery.

Main Activities/Responsibilities:

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| 1. | Establish and develop a working calibration system for large and complex geometry parts for advanced UT inspection, in accordance with industry code and practice, but also sustainable to the company. |
| 2. | Lead and project manage the KTP |
| 3. | Collate existing procedures and documentation to work within the new calibration system designed |
| 4. | Develop methods and instructions for Advanced PAUT inspectors to follow. |
| 5. | Engage in technical discussions for establishing most efficient methods of inspection |
| 6. | Completion of all KTP Training and KTP Associate Final Report in a timely manner |
| 7. | Work within NOV Document Management Systems and seek approval from relevant Engineering groups. |
| 8. | Establish global network of personnel for retrieving critical information for duration of project. |

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 PhD or a minimum of a MSc in Electronic, Mechanical, Materials Engineering, or Physics. For candidates with a MSc, a few years of relevant industrial experience will be required.

D1 Knowledge, ideally Qualification, for inspection using Advance UT or UT

Experience

E2 General understanding of Non-Destructive Testing and Evaluation

D2 Understanding and experience of phased array ultrasound testing.

E3 Understanding and experience of industrial Ultrasonics inspection.

D3 Understanding of ultrasound and wave propagation theory.

D4 Modelling software packages – Numerical/semi-analytical NDE, such as CIVA, or Comsol

D5 Signal processing -- through standard engineering languages, Matlab, Python, C

D6 Design, validation, testing - experience in developing products from design stage, using CAD software packages, to validation and testing.

D7 Experience of working with phased array ultrasound testing standards

D8 Experience of working with offshore oil and gas standards

Job Related Skills and Achievements

E4 Experience in technical writing, and presentation.

D9 Proficient in interpretation of Advanced UT Data

D10UT Level II or III Certification (any of the following EN4179/PCN/SNT/ASNT/NAS410)

Personal Attributes

E5 Strong communication skills in English.

E6 Strong can-do attitude

E7 Highly motivated and uses own initiative

E8 Strong interpersonal and collaboration skills

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.

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 Ehsan Mohseni, Electronic & Electrical Engineering (ehsan.mohseni@strath.ac.uk).

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.

Interviews

Formal interviews for this post will be held on a date to be confirmed.

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

KTP Associates



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, Privy Council.

The University Court recognises the Strathclyde University and Colleges Union (SUCU) as the sole body with which it will negotiate and consult on all collective issues concerned with the terms and conditions of employment of Research staff. Such terms and conditions may be varied by the University Court after negotiation and consultation with SUCU.

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 6 months. Further guidance on probationary procedures is published at <http://www.strath.ac.uk/staff/policies/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.

Further information on the terms and conditions specified in this document is contained in the Staff Handbook, which also includes further details of such conditions as provision for sick/injury leave and pay, leave of absence, holidays and holiday pay, individual grievance procedures, review and disciplinary procedures and collective agreements. Should you not receive a copy of the handbook on appointment a reference copy is accessible by visiting Human Resources.

2. CONTINUOUS SERVICE

In the case of new appointments, unless otherwise stated in the letter of appointment, the date of continuous employment for the purposes of statutory employment rights will be taken to be the date of appointment contained therein. In the case of promotions, regradings or transfers, previous service is continuous.

3. ALLOCATION OF POST

The post to which each member of staff is appointed is allocated to both the University Department and/or other area(s), and the Company Partner named in the member's letter of appointment and any accompanying papers. Should the University Court and/or the Company Partner deem it necessary, in the furtherance of the objectives of the University (specified in its Charter) and/ or the objectives of the Company Partner, they shall, having consulted with the parties concerned and having received the advice of the Senate, re-allocate the post and/or the duties pertaining partially or wholly to it to another University department or area and/or to another Company Partner Department or to an associated Company. Any such re-allocation will be without prejudice to the other conditions of employment of the holder.

If the need arises during the course of employment for members of staff to work outside the U.K. 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.

4. RESPONSIBILITY AND SERVICE

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 <http://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.

Each member of staff is responsible for the proper performance of allocated duties to the person or persons specified in the member's letter and any accompanying papers. Unless otherwise indicated.

5. WORKING TIME

Working time is that required to fulfil the duties of the post and members of staff are expected to comply with the general working pattern of the KTP Company Partner. Further details in relation to working hours will be provided within the offer of employment and/or by the Company Partner on commencement of employment.

6. HOLIDAYS

Entitlement to accrue paid annual holiday will apply from the date of commencement and the accrual rate will be as per the provisions of the KTP Company Partner, Public Holidays will only apply where they are observed by Company Partner and it may be that these have to be taken from the annual leave entitlement where the Company does not apply a separate entitlement in this regard. Where Public Holidays are not observed by the Company Partner, these days may still be taken from the annual holiday entitlement, subject to authorisation. In cases where the Company Partner operates a period of annual closedown, these days may count against the accrued annual holiday entitlement, subject to the normal practices of the Company Partner. Further details and arrangements for requesting leave will be confirmed within the Offer of Employment and/or by the Company Partner on commencement of employment.

7. SICK LEAVE

During any period of absence through illness or injury provided the appropriate medical certificates are received 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:

| Period of Continuous Employment at start of absence from work | Full Pay | Half Pay |
|--|-----------------|-----------------|
| Less than 1 year | 1 month | 1 month |
| 1 year but less than 2 years | 2 months | 2 months |
| 2 years but less than 3 years | 4 months | 4 months |
| 3 years but less than 5 years | 5 months | 5 months |
| 5 years or more | 6 months | 6 months |

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 Health and Social Security. For this and other details see staff handbook.

8. SALARY AND SUPERANNUATION

Salaries are payable monthly by means of a credit transfer to a specified bank account.

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 6.1% of pensionable salary. A threshold applies to the maximum salary that counts towards the USS Retirement Income Builder. The current

threshold from 1 April 2024 is £70,296 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>. 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

9. PLACE OF RESIDENCE

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

10. PERIOD OF EMPLOYMENT

Members of staff are employed on the conditions indicated in individual letters of appointment and any accompanying papers. The University is not obliged to give notice of termination or continue any employment beyond the end of the fixed term period. Where the period of the contract of employment is for one year or less it may be terminated short of the fixed term period by 1 month's notice on either side. Where the period of the contract of employment is for more than one year, or where there have been a further contract or series of contracts immediately consecutive, the employment may be terminated short of the fixed term period by 3 months' notice on either side, except during the probationary period when the notice period is one month.

11. NOTICE AND TERMINATION

The employment of a member of staff is terminable by at least three months' notice in writing, on either side; except during probationary period when the notice period 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 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 months' notice in writing. The University is not obliged to continue a fixed term appointment beyond the employment period.

Revised April 2024