



**Job Title:** Mechanics of Materials Associate (KTP)

**Grade:** KTP

**Salary:** Up to £34,000 per annum plus a £2,000 training package per annum

**Department:** School of Engineering

**Hours/Contract:** Full-time, fixed-term contract for 19 months or to 12 March 2027, whichever sooner

**Job Family:** Teaching and Research

**Reference:** 11491

## Role Purpose

To complete a project to develop a predictive model for manufacturability of pharmaceutical tablet formulations.

Although employed by the University and carrying out a large percentage of the work at the University, you will be based at I Hollands's premises in Long Eaton - near Nottingham - with a pivotal role in driving this unique academic and industrial collaboration. This KTP aims to examine material properties and deliver a predictive model that will inform tablet producers the type of XDF (eXtended Dwell Flat) Form Head that will reduce sticking. This tool will be embedded across the business and its agents.

Ultimately, the project will support I Holland's research and development team to embed new knowledge into the company that will increase competitiveness and profitability.

## Main Duties and Responsibilities

### Research and Innovation:

- Conduct academic applied research
- Establish material testing protocols
- Analysis of raw data on material behaviour and processing of data
- Characterisation of active pharmaceutical ingredients and powders
- Analysis of principal components using statistical tools, MATLAB and Python libraries
- Experimentation in use of tablet press
- Publications and report writing
- Coding, including user interface

### Professional Development:

- Duties and opportunities to engage in work that support your own professional development.
- Attendance atACHEMA Pharma Trade Show

### Impact and Knowledge Exchange:

- Network and contribute to the maintaining and furthering of the wider research and technology innovation programme and research area
- To contribute to industry collaborations
- To consult effectively on own specialism directly with people external to the University
- To engage positively and pro-actively in research impact

### Leadership and Citizenship:

- Guidance to other team members both design and product innovation staff and students.
- Pro-actively build networks and collaborations.
- Providing mentoring and coaching to Early Career Researchers and research students





**Internal and External Relationships**

The post is based at the premises of I Holland Ltd in Long Eaton, Nottinghamshire. The post-holder will be directly supervised by a Company Supervisor on a daily basis and will also receive mentoring from an Academic Supervisor as required by the post. The post-holder will be responsible for ensuring that appropriate information exchange is maintained between I Holland and the University of Leicester.

**Planning and Organising**

The post-holder will be working to a work plan as defined in the grant application with specific tasks and outputs. You will transfer knowledge from the academic lead to I Holland in Mechanics of Materials, experimental characterisation, data processing models and structural analysis tools. In addition, the post-holder will also be required to complete a more detailed action plan (e.g.: including a Gantt or Critical Path Network, and risk assessment) and adapt the plan as the project progresses.

**Qualifications, Knowledge and Experience**

**Essential**

- PhD/MSc/MEng/BSc or equivalent in a science discipline with knowledge of mechanics of materials
- Background in Mechanics of Materials\*
- Evidence of proven analytical problem-solving capability \*
- Expertise in relevant approaches/models and analytical techniques and ability to develop new ones where required. Specifically:
  - Embedding mechanics of materials concepts
  - material characterization routines and constitutive model calibration protocols
  - use of statistical methods
  - data validation methods

**Desirable**

- Background in Surface Engineering\*

**Skills, Abilities and Competencies**

**Essential**

- Competence in the use of MATLAB and Python
- Ability to deliver academic research
- Willingness and ability to work with internal and external stakeholders. Specifically:
  - Ability to share the development of the predictive model with suppliers
- Excellent communication skills – written and verbal evidenced by the ability to communicate complex information\* specifically but not limited to:
  - Ability to produce a professional and concise ‘how to’ guides (written and video) to support the embedding of the predictive model to I Holland
  - Ability to make professional presentations at I Holland Board, conferences and KTP Innovate UK events
- Evidence of working effectively as part of a team and the ability to work independently
- Working towards independence and ability to be involved in collaborative research





### Desirable

- Project management and business acumen.
- Ability to work within a diverse development team comprising of academics and industrial partners and the wherewithal to impart new knowledge to the company team, embedding it through paired working, training and relevant 'how to' documents.

***\*Criteria to be used in shortlisting candidates for interview***

### Reason for Fixed Term Contract

The reason for the fixed term contract is stated in section 1.9 in the summary of contractual terms in your contract of employment.

### Criminal Declaration

If you become an employee, you must inform your manager immediately, in writing, if you are the subject of any current or future police investigations/legal proceedings, which could result in a criminal offence, conviction, caution, bind-over or charges, or warnings.

### Supporting University Activities

As a University of Leicester citizen, you are expected to support key university activities such as clearing, graduation ceremonies, student registration and recruitment open days. We expect all staff as citizens to work flexibly across the University if required.

### University Values

**Inclusive** - We are diverse in our makeup and united in ambition. Our diversity is our strength and makes our community stronger.

**Inspiring** - We are passionate about inspiring individuals to succeed and realise their ambitions. We challenge our community to think differently, to get involved, and to constantly embrace new ideas.

**Impactful** - As Citizens of Change we will generate new ideas which deliver impact and empower our community

### Equity and Diversity

We believe that equity, diversity and inclusion is integral to a successful modern workplace. By developing and implementing policies and systems that challenge stereotypes across all aspects of our work, we have a culture that recognises and values the diverse contributions of our staff which benefits everyone. Our strong values of inclusivity and equity support our efforts to attract a diverse range of high quality staff and students, and identify our University as a progressive and innovative workplace that mainstreams equity, diversity and inclusion.

