

PhD Studentship: Vice-Chancellor's PhD Studentship (Fully Funded)  
Location: Buckinghamshire New University, High Wycombe, UK  
Mode of Study: Full-time, in-person  
Duration: 3 years

**Title: Digital twin-enabled circular additive manufacturing**

**Project summary:** This PhD project focuses on developing circular, digitally enabled additive manufacturing systems using recycled plastic waste, including post-consumer plastics and additive manufacturing process waste. The research will explore how waste plastics can be transformed into high-quality feedstock suitable for material extrusion (MEX) additive manufacturing, reducing reliance on virgin materials. The project will integrate advanced recycling methods, materials characterisation, and process optimisation with digital twin technologies. The digital twin will enable real-time monitoring, modelling, and optimisation of manufacturing processes to improve material consistency, performance, and reliability. The research aims to establish a sustainability-driven framework that connects recycling, material performance, and intelligent digital process control. The outcomes will contribute to the development of scalable circular manufacturing solutions applicable to additive manufacturing and broader polymer processing industries. The research objectives include:

- a. Investigating recycling and processing methods to convert plastic waste into additive manufacturing feedstock.
- b. Evaluating the mechanical and functional performance of recycled polymer materials.
- c. Developing digital twin models to monitor and optimise additive manufacturing processes.
- d. Establishing a framework linking sustainability, material performance, and digital manufacturing intelligence.

**Funding and eligibility:** This project is open to UK and international applicants for full-time study only, and covers:

- Tuition fees for up to three years.
- A bursary of £15000pa for up to three years.

The successful candidate must enrol as a full-time PhD student at Buckinghamshire New University. The candidate is required to attend campus regularly, normally at least three days per week for 45 weeks per year. Any absence from campus during this period must be formally agreed by the Graduate School and will normally only be permitted for research-related activities such as data collection, fieldwork, conferences, or approved training.

Continued enrolment and funding are subject to satisfactory academic progress, including successful completion of progression reviews and participation in the University's research training and development programme.

This is an in-person studentship and cannot be undertaken remotely. Any employment undertaken during the studentship must be declared and approved in line with University regulations.

**Person specification:** The successful applicant will have:

- A First or Upper Second-Class degree (or MSc/MEng preferred) in Mechanical Engineering, Materials Engineering, Manufacturing Engineering, Polymer Engineering, or a closely related discipline.
- Strong interest in sustainable manufacturing, circular economy, and additive manufacturing.
- Good analytical and problem-solving skills.
- Excellent written and verbal communication skills.
- The ability to work independently and as part of a research team.
- Knowledge or experience in additive manufacturing, polymers, recycling, or materials processing.
- Experience with data analysis, modelling, or programming (e.g. Python, MATLAB, or similar).
- The successful candidate will be expected to contribute to the BNU research community and to academic publications in sustainable and digital manufacturing.

**How to apply:**

Applicants must follow the standard PhD application process through Buckinghamshire New University, as outlined on the Graduate School website.

In addition to the normal application requirements, applicants must also complete and submit the Vice Chancellor's PhD Studentship application form alongside their PhD application.

Only complete applications, including both the standard PhD application and the VC Studentship form, will be considered.

To apply for a research degree, please email the following documents to [ResearchUnit@bnu.ac.uk](mailto:ResearchUnit@bnu.ac.uk):

a completed [Application Form](#)

a Research Statement ([Download Research statement template](#))

scanned copies of your degree qualifications - as in point 4 of the guidance notes in the application form. (Other supporting documentation may be submitted if available)

a scanned copy of your passport

evidence of any previous publications or research outputs, where relevant

Applications are considered two times during each academic year. The current application deadlines and associated start dates are as follows:

Application deadline	Start date
20 April 2026	1 September 2026

The Research Degrees Admissions Panel reviews all applications and decides whether to invite candidates for interview. The Panel aims to provide an outcome within 8 to 12 weeks of receiving a complete application. Successful applicants will receive confirmation of their start date as well as details of their induction programme.