



EngD Biopharmaceutical Process Development

Be one of the twelve

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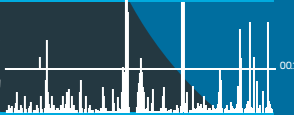
Engineering Doctorate in Biopharmaceutical Process Development

00.00 **Course Information**



EngD Biopharmaceutical Process Development

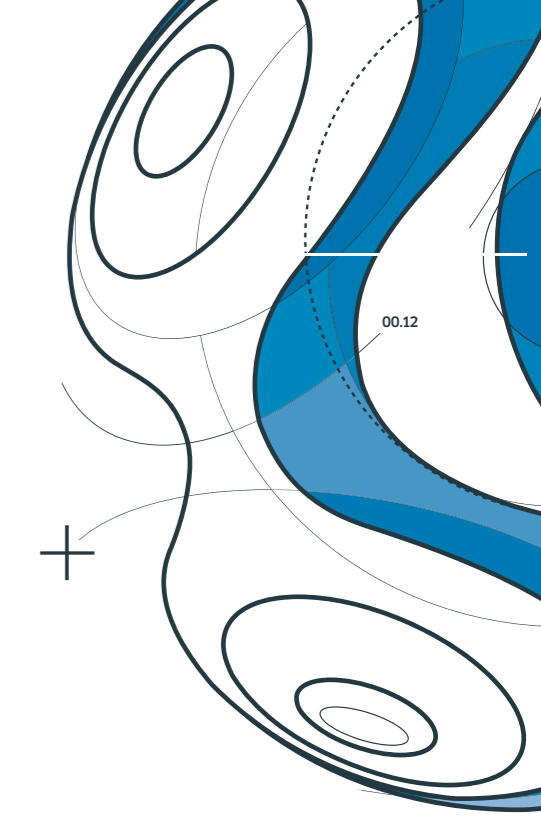
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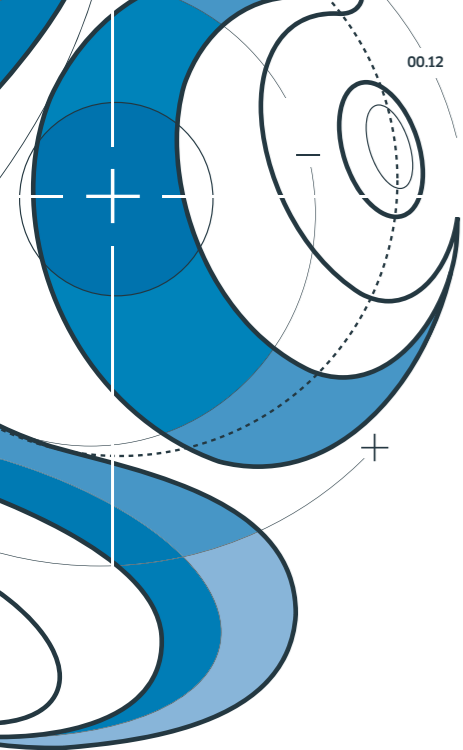


Be one of the twelve

This innovative, highly prestigious programme offers twelve students a year the opportunity to combine research and industrial training in a four year Engineering Doctorate (EngD).

Students spend 3.5 years on industrial placement, allowing them to build on existing skills with the latest scientific and engineering techniques and management skills to enable them to work at the interface between disciplines. This inter-disciplinary research philosophy aims to evolve techniques to more rapidly progress biopharmaceutical products through the development chain. Bioscientists and engineers working together will acquire an understanding of the business environment and will deliver significant technological advances to the UK biopharmaceutical industry.



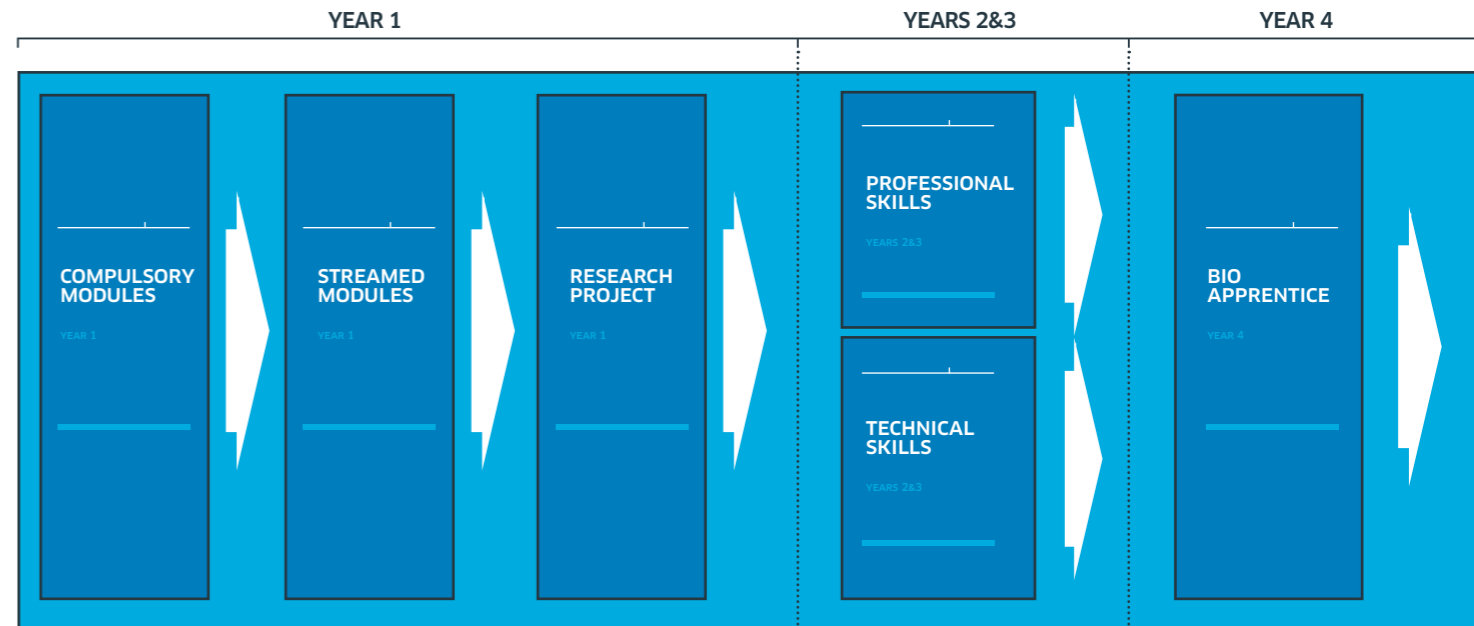


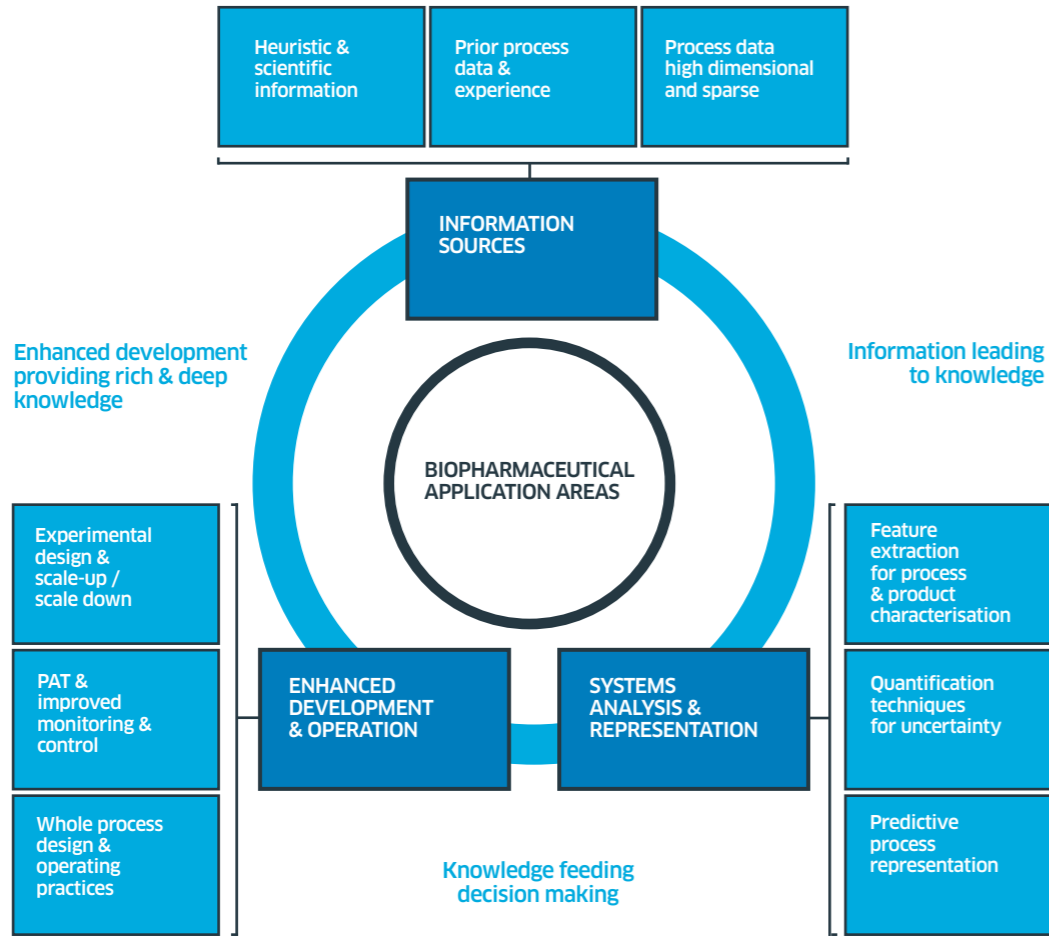
00.01 Course Structure

During the first year, students undertake taught modules and an industry-focused research project that forms the basis for their main industrial research study.

Students take a number of compulsory modules which give the student a good grounding in the concepts and frameworks required for the Engineering Doctorate. The student is then able to choose from a range of optional modules, these are streamed depending on the student's academic background and research project.

In years two and three, modules build on the fundamental knowledge gained in year one and are divided into professional skills modules and technical competencies where students choose from a range of options. In year four students are encouraged to contextualise their knowledge in terms of business application. The Bio-Apprentice module sees students divided into competing teams, tasked with finding solutions to 'real-life' business world scenarios such as how to market a new product, surviving an FDA visit or winning a contract as a contract manufacturing organisation (CMO). The prize for the winners will be a five day study trip to Purdue University in the U.S. or to the Institute of Chemical and Engineering Sciences in Singapore.

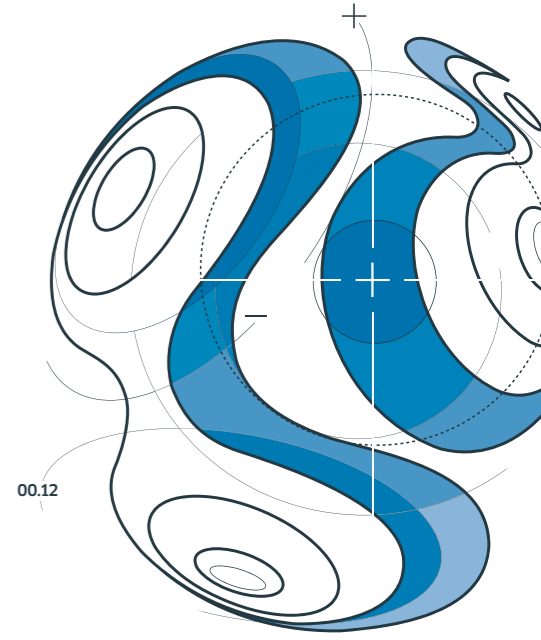




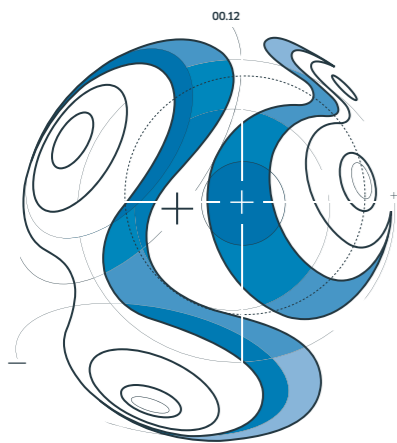
00.02 Research Projects

The research projects will consider improvement opportunities for both established biopharmaceutical production routes and horizon products such as stem cells and marine biotechnology. In seeking improved development three overarching areas of focus will be considered:

- + Measurement, data and knowledge management. Process analytical technology, data management, new measurement and analysis techniques, signal pre-processing and complex data interpretation
- + Systems analysis and building process representations. Enhancing biosystems understanding, bioinformatics, Feature extraction, data visualisation, process modelling and representation, risk based analysis
- + Enhanced development and operational strategies. Experimental design strategies, whole process design, process monitoring, control and optimisation, improved operational strategies.



Some of the companies we are currently working with. For a full list visit www.ncbiosystems.net



00.03 Funding

The Engineering Doctorate programme is supported by the UK Engineering and Physical Sciences Research Council (EPSRC) and Newcastle University, offering twelve fully funded industrially collaborative four year studentships per year with a tax free stipend of circa £19,000p.a.

00.04 Current Students

“ I graduated from the University of Veterinary Medicine of Vienna in with a BSc biomedicine and biotechnology and moved to Newcastle to do my MSc in drug chemistry. The EngD is in my opinion an excellent interdisciplinary programme where engineers, chemists, and biologist are getting the opportunity to get an excellent education in different fields of science. However the main reason why I chose the EngD over the more traditional PhD is the close cooperation with industry which offers you a broader education and without lacking in knowledge in your special research area.”

+ BERNHARD KEPPLINGER (1ST YEAR STUDENT)

“ I graduated with a BSc (hons) in Biochemistry from Newcastle University and then spent one year at the University of Leeds studying for a Masters in the same area. I was attracted to the EngD as it offers the industrial experience required for a career in the pharmaceutical sector which a conventional PhD does not. The programme also provides training in business and promotes public engagement which I believe is essential to producing a well-rounded scientist. For my project I am working with one of the smaller companies researching into the optimisation of an algae photobioreactor for the production of high value chemicals.”

+ CHELSEA BRAIN (1ST YEAR STUDENT)

“ Since February of my first year I have been based at AstraZeneca in Bristol. This has given me the opportunity to work with the engineers in the company and get to know the processes that I have been working on, including visiting the process plant. It has also given me a chance to learn more about the drug development process, and the various roles that engineers and scientists in the company have.”

+ JOANA FIGUEIREDO (2ND YEAR ENGD STUDENT)

“ I WAS ATTRACTED TO THE ENGD AS IT OFFERS THE INDUSTRIAL EXPERIENCE REQUIRED FOR A CAREER IN THE PHARMACEUTICAL SECTOR WHICH A CONVENTIONAL PHD DOES NOT ”

+ Chelsea Brain

00.05 Entry Requirements

Given the interdisciplinary diversity of the EngD programme, a broad range of first degree disciplines are appropriate. Successful candidates will have a strong desire to work at interdisciplinary interfaces and the nature of the EngD research areas requires high levels of numeracy and computer aptitude.

The EPSRC funded EngD project studentships are available to those that satisfy their eligibility criteria. For information go to; www.epsrc.ac.uk/PostgraduateTraining/StudentEligibility.htm

Two prestigious Newcastle University funded EngD positions are available to candidates who do not satisfy the criteria but can demonstrate academic excellence.

00.06 How to Apply

Application queries can be addressed to queries@nclbiosystems.net
Formal applications made using the University application portal
www.ncl.ac.uk/postgraduate/apply/applicationforms/



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