MEng Electronic Engineering with Nanotechnology (H6FH)
MEng Electronic Engineering with Nanotechnology with a year in industry (H6FG)

Recent advances in fields such as electron microscopy and device fabrication have put nanotechnology at the forefront of today’s electronic engineering. Nanotechnology encompasses the design and study of devices on a scale of less than 100nm, barely a few hundred atoms across. Devices utilising nano-wires, single electron logic and nano-scale memories are now being developed for various applications, including ultra-high speed processors. In the environmental and medical fields, nano-scale versions of devices, for example, photodiodes, are being combined with “lab-on-a-chip” technologies to offer revolutionary improvements in sensing capabilities.

All such applications depend upon a good understanding of nano-fabrication and integration methodologies, requiring knowledge of a wide range of electronic engineering principles – both hardware and software. The nanotechnology degree at York emphasises those areas of nanotechnology of direct relevance to contemporary electronics, placed in the context of a broad and strong core programme in electronics, and provides ‘hands-on’ opportunities to build and characterise nanoscale devices.

Drawing on the expertise of the nanotechnology research group at York, and including individual and group projects at every stage of the degree to develop practical, organisational, management and business skills, this programme will provide you with practical experience and theoretical knowledge required to operate with confidence – as a researcher, expert designer, or technical manager – in the rapidly-expanding world of nanotechnology.

The final year of this Masters-level programme extends the Bachelors (BEng) programme by providing an opportunity for further engagement with research staff, technology and literature. Students will manage a large-scale individual project, and extend their knowledge and experience in a variety of core and optional topic areas; together these opportunities allow you to develop the knowledge and skills required to take a leadership role in pushing forward this specialist subject area.

As with all our undergraduate degrees, the MEng Electronics Engineering with Nanotechnology is fully accredited by the Institute of Engineering and Technology, and satisfies the educational requirements for becoming a Chartered Engineer.
Programme Learning Outcomes

Our undergraduate programmes are based around a shared set of six Programme Learning Outcomes (PLOs). These consist of four major areas, which are developed throughout each programme:

A. Knowledge – understanding & processing information about the subject (PLO1)

B. Engineering Application – using knowledge to create and modify solutions to real-world problems. This consists of 3 separately identifiable Programme Learning Outcomes (PLOs): PLO2: Engineering Analysis; PLO3: Engineering Design; PLO4: Practical Skills.

C. Communication – explaining concepts and results to other people (PLO5)

D. Management & Graduate Skills – professional self and group organisation (PLO6)

After completing the programme, graduates will be able to:

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<tr>
<th>Area A: Knowledge</th>
<th>Conduct research in nanotechnology and applied electronic engineering advance the state of knowledge in algorithms, devices (miniaturisation, behaviour and fabrication) and systems.</th>
<th>PLO1 Subject Knowledge</th>
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<tbody>
<tr>
<td>Area B: Engineering Application</td>
<td>Extract and critically evaluate data from complex systems through analytical and computational methods and modelling.</td>
<td>PLO2 Engineering Analysis</td>
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<td>Create innovative and optimised designs to address real-world problems involving nano-fabrication, nanostructures and analogue &amp; digital electronics by synthesising ideas into engineering specifications.</td>
<td>PLO3 Engineering Design</td>
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<td>Apply professional skills of fabrication, programming, CAD, construction and measurement, combined with an understanding of engineering systems and components, to solve technically challenging problems.</td>
<td>PLO4 Practical Skills</td>
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<td>Area C: Communication</td>
<td>Debate, defend and contextualise information in a succinct and technically accurate manner for audiences of engineers and members of the public, and to write and interpret technical documentation.</td>
<td>PLO5 Technical Communication</td>
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<td>Area D: Management &amp; Graduate Skills</td>
<td>Proficiently manage themselves, teams and complex projects in preparation for technical careers as leaders in nanofabrication and integration methodologies and electronic engineering.</td>
<td>PLO6 Management &amp; Personal Development</td>
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Find out more

For more details, including programme content and the application procedure, please visit our website:

www.york.ac.uk/electronics/undergraduate/courses/nanotechnology

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